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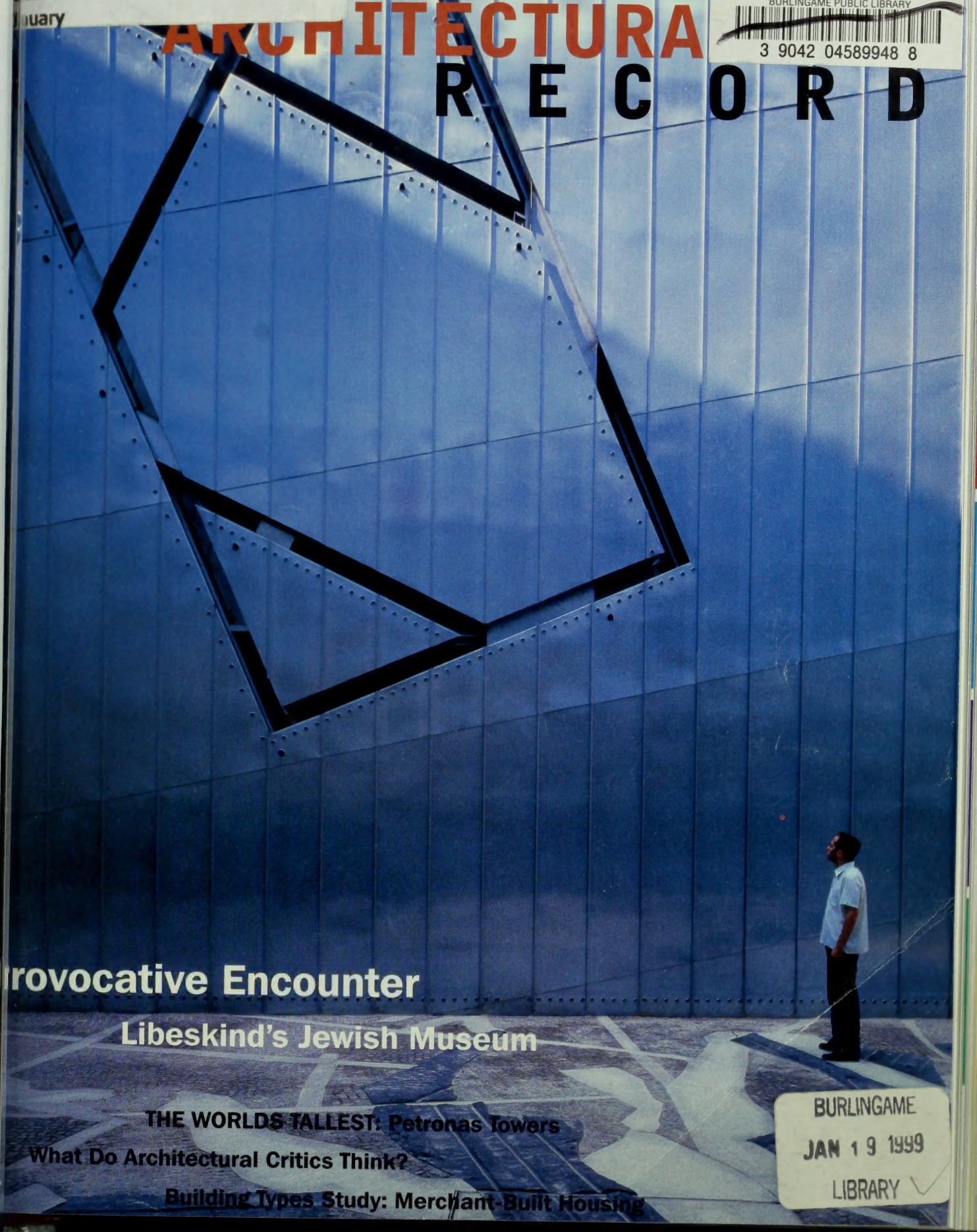
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Cover: *The Jewish Museum, Berlin. Studio Daniel Libeskind. Photograph © Bitter + Bredt.*
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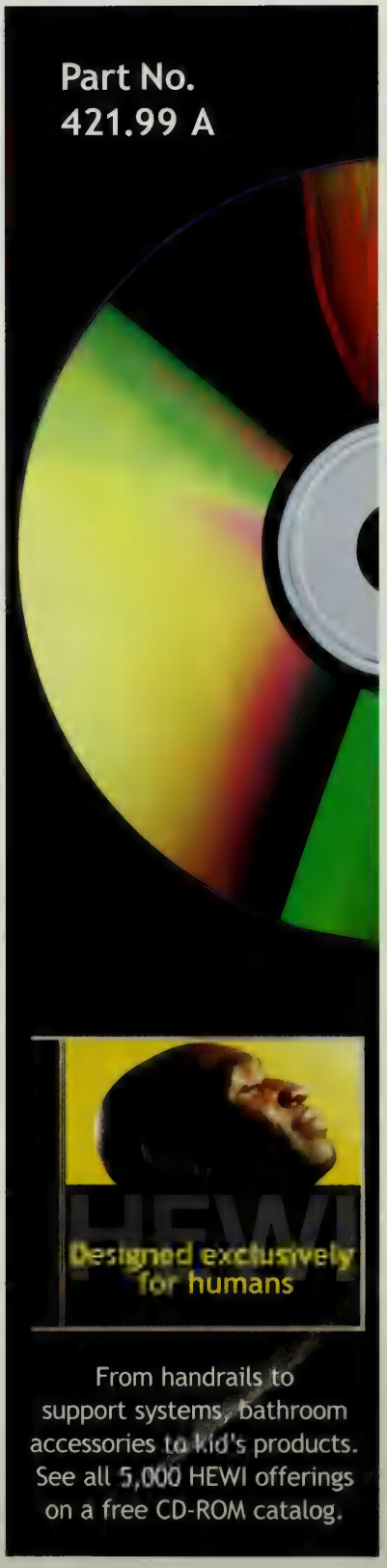
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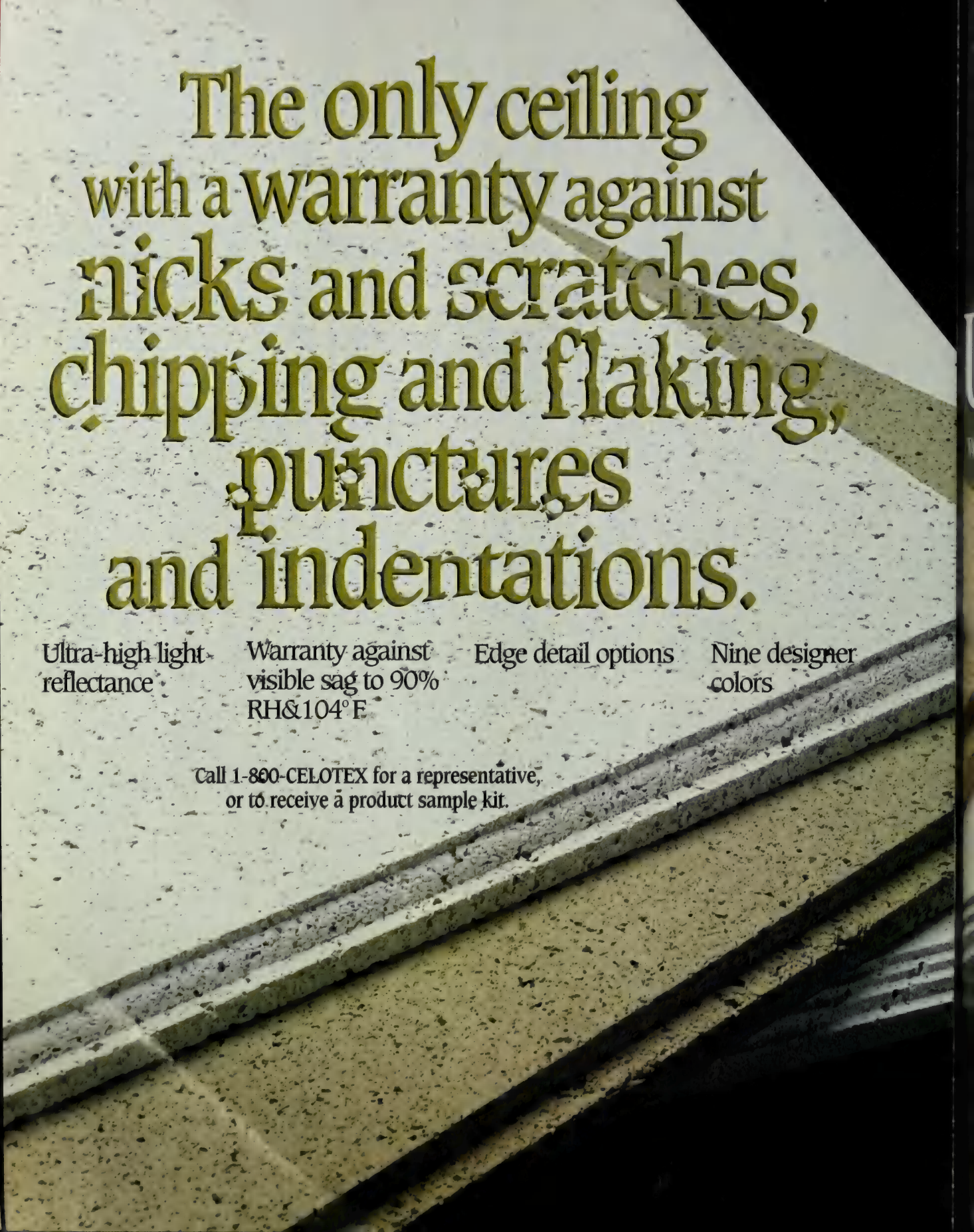
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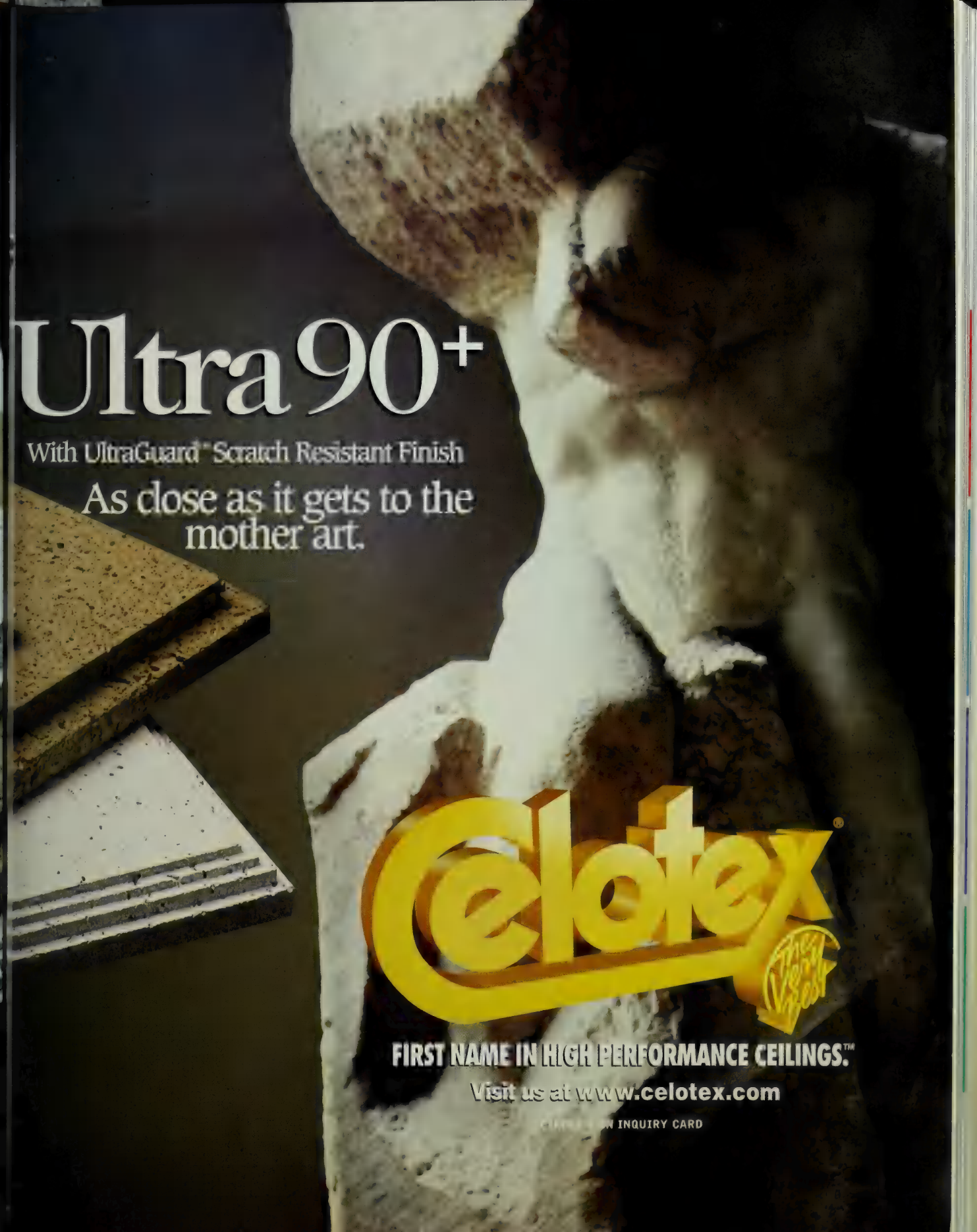
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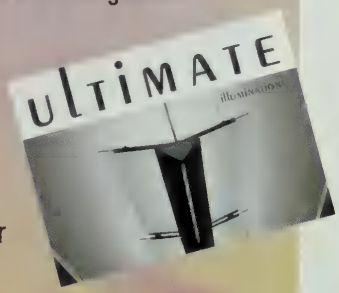


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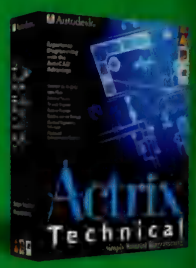
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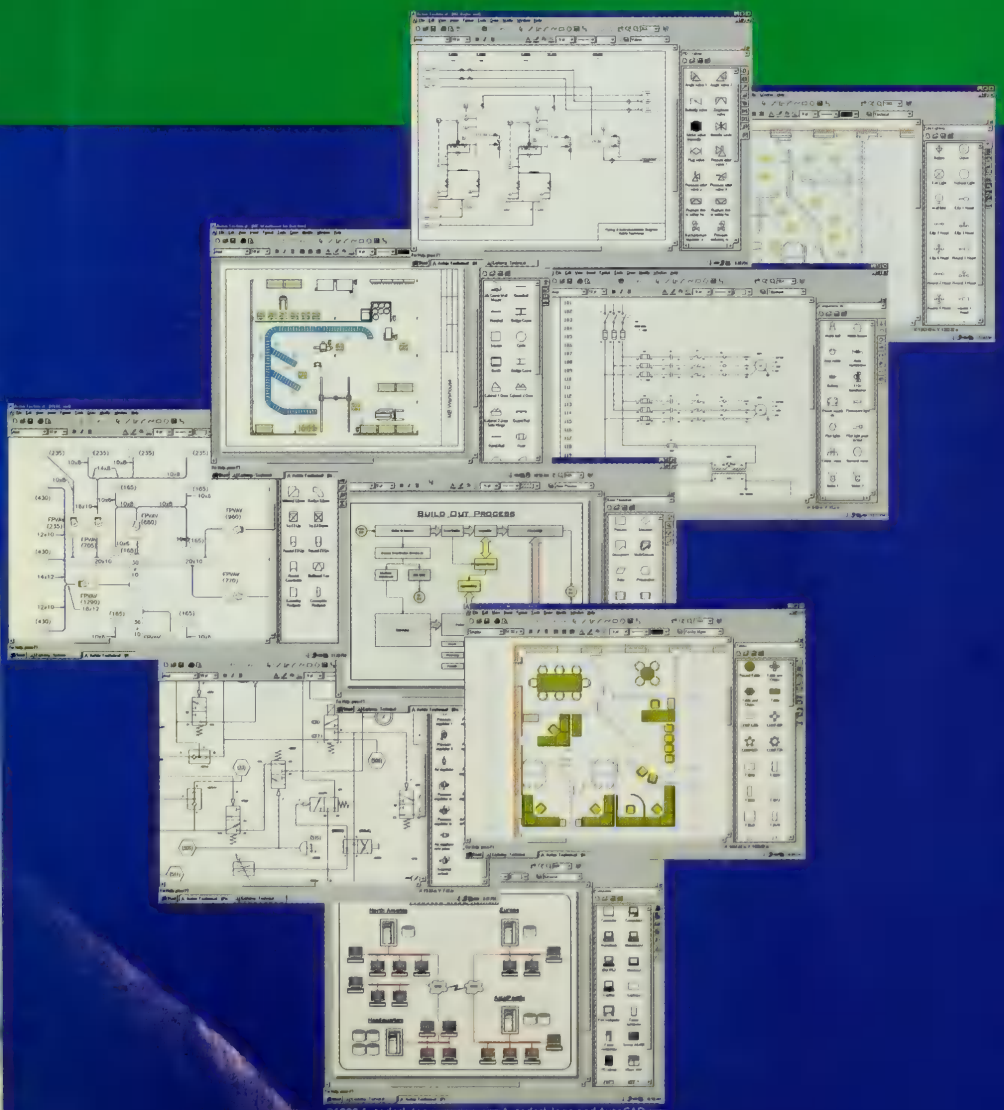
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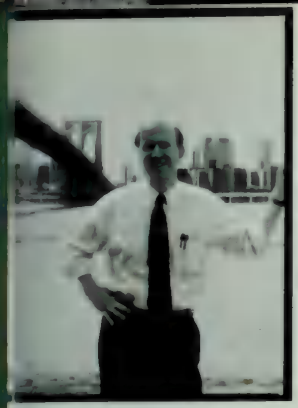


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EDITORIAL

Standing Up to Sprawl

BY ROBERT IVY, FAIA

Sustainability, the rallying cry of a generation of architects, has faded to a shade of bland, scarred over with 1960s moralism and overwhelmed by today's cheap oil and a backlog of work. Besides, we architects are having too much fun with zooming forms and theoretical debate to obsess over houses made out of wheat.

So how can we invest sustainability with new meaning? In the abstract, sustainability may not be sexy enough, but consider one aspect of the term that has caught fire, politically—land use. The world remains finite in its girth and resources, increasingly pressured by population and commerce to yield up its wealth; open land continues to vanish. We are, in effect, spending our natural capital in sprawl, with potentially dire consequences for our children and ourselves.

Look out the window of any aircraft at night. Streetlights have spread like galaxies across this continent, reaching far out into farmland and desert, claiming rural spaces that once seemed infinite. Atlanta and Houston are exploding out in concentric rings deep into the temperate South; California and the Northeast resemble massive rivers of light. Despite the successful revitalization of urban centers like New York, our national hunger for land continues to propel us outward with gale force. Who can prevail against such a powerful social and economic force?

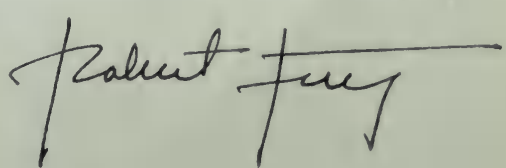
There are some reasons for hope, though. More and more people are becoming fed up and are finally adopting arguments against sprawl. This past November, "slow growth initiatives" appeared on more than 200 state and local ballots, and in most cases succeeded. The results have been significant: in New Jersey, the state will appropriate $1 billion to protect open land; despite howls of protest from farmers and other landowners, Ventura County, just north of traffic-choked Los Angeles, voted to limit development of its golden farmland.

A curious mixture of constituencies has picked up the cry. Planning advocates and ecology groups decry deforestation. In the West, slow growth often takes a conservative bent, focused on issues like grazing or property rights. But some blue ribbon national institutions have extended the debate, such as the National Trust for Historic Preservation, a group that has put fighting unmediated growth on its list of priorities.

What can architects do about sprawl? Roger Stone, the head of the Sustainable Development Institute in Washington, D.C., believes that the time has come for proper planning. "There is a real need for architects to think beyond the individual building or compound, to think about larger issues," he says. He cites the need to adjust our zoning, land-use regulations, and the entire regulatory environment. As proof, he points to increasing traffic from (and in) the ever-burgeoning suburbs, a symptom of a land-use disease that will not abate without controls; the hours lost in congestion cost employers, commuters, and merchants in productivity and peace of mind.

Proper planning demands leadership, a credible voice that can sort through conflicting points of view. It also demands alliances of architects with landscape architects and planners, engineers, politicians, and entire communities, offering new opportunities for us to gain visibility and prominence as spokespersons for the built environment. Regarding public concern for more careful land use, the Washington Post *recently noted the emergence of "a possibly new fixture in American political life: aesthetics." What an opportunity! A more educated populace cares how their world looks, and architects hold the key.*

Our best response to the debate may not be "no growth" or even "slow growth." Instead, we can champion "smart growth," a strategy that uses our professional skills and our instincts for sustainability to strike a balance between vibrant cities and the natural world. It is time to stand up to sprawl.





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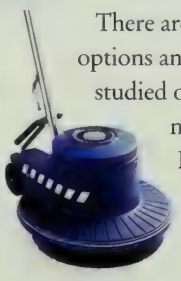
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LETTERS

Do ethics get in the way?
Ava J. Abramowitz's November Speak Out on ethics [page 24] argues, in essence, that architects shouldn't let their conscience or the needs of society get in the way of satisfying a client's wishes. This may be a profitable and popular business strategy, but it is certainly not good counsel.
—Tom Houg, AIA
Seattle

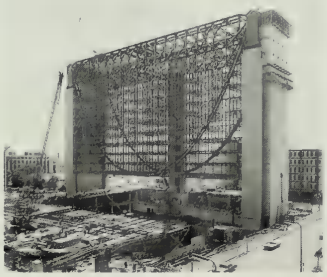
The ethics of our craft supersedes the mundane occurrences of practical business, right? Please, come down from the pedestal. Ava Abramowitz is right when she suggests that it is perhaps more unethical for architects to ignore the desires of their clients in pursuit of a higher ideal, whatever *that* might be.

The greatest satisfaction of practicing architecture should be the symbiosis of architect and client in the creation of a successful project. When this happens, the certain result is that the client is satisfied, the architect fulfills his or her civic responsibility, and the sound ethics of our profession are reinforced.
—John VanderSyde, AIA
Construction Coordinator
Chesterfield County Public Schools
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If architects were to follow Ava Abramowitz's recommendations, they would avoid making moral decisions at all, except as a last resort. In writing about what she thinks should be the architect's approach to ethics, Ms. Abramowitz may have written herself out of her position on the National Architectural Accrediting Board.
—Marcia P. Roberts, AIA, CSI
Conservation Specialist
Lower Colorado River Authority
Austin, Tex.

Don't save icon by changing it
On page 52 of the November news, Bette Hammel reports on proposed changes to the Federal Reserve Bank of Minneapolis [original construction photo below].

She withholds editorial comment, but it is inconceivable that any architectural mind would consider filling the space below the catenary structure. It is not necessary to pay homage to the building. Save the image for memory, put a hood over it, but do not adulterate it.
—Gunnar Birkerts, FAIA
Bloomfield Hills, Mich.



Gunnar Birkerts's Federal Reserve Bank of Minneapolis, circa 1973.

Talent is not measured by fame
I enjoyed Wendy Moonan's November article on the megahouse trend [page 74] until the closing paragraphs. She wonders "whether clients are choosing America's better architects to design their modern megahouses" and concludes that they are not, since few "big-name" architects are identified in the *Palm Beach Post* story on the subject.

We're led to believe that when it comes to successful architecture, fame equals quality. Like most of your readers, I am not a famous architect and am disappointed to read a comment like this in your magazine.
—Philip Weiner, AIA
Lost Lodge Architects
Westport, Conn.

I would like to applaud you for publishing one of the most thoughtful and well-written articles I have ever read in your magazine, "The Aga Khan Award: Honoring Substance Over Style" [November, page 68]. It should be required reading for any and all practicing architects. But how could you have printed the last paragraphs of the article on megahouses which followed?

In only a few words, you served notice to all "non-name" architects that they are not the "better" architects and therefore not capable of producing anything other than common, ordinary buildings. Shame on you.
—Michael J. Cohen
Michael J. Cohen Interiors
New York City

Any architect who secures a commission for a megahouse has earned the right to attempt to make his "name" with it, and should not be scorned for his lack of notoriety. Perhaps America's "better" architects are at work on such projects right now, and have simply yet to receive recognition for their achievements.
—Richard L. Taylor, AIA
Richard Taylor Architects Inc.
Dublin, Ohio

The design-build dilemma
While no one "can afford to ignore design-build today," as you say in your October editorial [page 15], it would be interesting to read some comments from you on how the architect can continue to promote the public's health, safety, and welfare when he or she has a financial interest in the outcome of the project. This ethical dilemma seems to be ignored in most commentaries, which appear to rely on the assumption that people will behave ethically as a way of promoting future business.
—Gerald Gamliel Weisbach, FAIA
Long & Levit
San Francisco

We applaud the courage of your October editorial on design-build. Rather than give the subject of design-led design-build the profession's usual patronizing lip service, you have challenged the architectural community to explore the opportunities that this process can offer. We've been crusading for this same cause for many years now, and have heard the same well-intended ignorance: too much liability and too little quality.

Although traditional design-build may not be the answer, we cannot continue to rub our eyes and wait for the concept of design-build to disappear like a bad dream. A client-driven phenomenon, it has changed our industry forever. In the future, it will be an even more evolved process: efficient, proactive, and versatile. We should embrace these opportunities and stop mourning the passing of our traditional practice.
—Clifford W. Bedar, AIA
Michael W. Behm, AIA
HDR Architecture Inc.
Chicago

Credits/Corrections
In the October coverage of the Business Week/Architectural Record Awards, the images of the New York Times Printing Plant on page 100 should have been credited to Jeff Goldberg/ESTO and the images of the McNitt Building on page 101 should have been credited to Bob Shimer/Hedrich-Blessing. This is the reverse of what was printed.

In the same article, the description of the Gap Inc. headquarters (page 94) erroneously identified Sierra-Pine's formaldehyde-free medium-density fiberboard, Medite II, as particle board.

The AP Photo accompanying the essay on juvenile detention in the December issue (page 69) was taken by Rob Wythe of the *Plano Star Courier.*

The design architect for the Newport Aquarium (Correspondent's File, November, page 39) was GBBN Architects and the interior architect was Deutsch Associates. HOK Sport was incorrectly credited with the project. ■

Letters may be E-mailed by visiting our Web site at www.archrecord.com and clicking on News/Features/Dialogue. RECORD may edit letters for grammar, style, and length.

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CIRCLE 10 ON INQUIRY CARD

SPEAK OUT Awards and honors programs provide a prime opportunity to support innovation and involve communities.

MARGA ROSE HANCOCK, HON. AIA

Marga Rose Hancock, Hon. AIA, is executive vice president of AIA Seattle. She recently served on the AIA Honors and Awards Task Force.



Robert Ivy's editorial on awards programs (November, page 15) begs further thought on how architectural honors can gain local relevance and attention. We at AIA Seattle recently celebrated the Honor Awards for Washington Architecture—a meaningful evening of observation and discourse. An articulate jury with members in architectural practice, education, and the arts reviewed 105 entries, visited a dozen or more of them, selected 15 "completed" and three "conceptual" ones for citation, and offered an assessment of Washington design.

Our experience over the years has generated a few guidelines that can help local awards programs grow into bigger, more important and resonant community events, at a time when many people in architecture are questioning the importance of awards and tend to dismiss them as empty exercises.

When done right, honors and awards have both internal and external value. Across the country, design awards programs are often *the* annual occasion when architects put forward their work for review and comparison. They provide the opportunity to consider not just the quality of individual achievement but the cumulative meaning and impact of the design community's recent work. Why waste a valuable opportunity? Those seeking to maximize the effects of an honors program may want to consider these suggestions:

Create discourse within and beyond the profession. Challenge juries to not just select but also present their findings, preferably in an interactive format. In addition to clients and users, juries in Seattle have included children, artists, public officials, journalists, teachers, builders, and others from the extended family of design disciplines. Both local and national programs can generate further ongoing dialogue, extending worldwide via the Internet.

Include conceptual work, to encourage and recognize innovation. AIA Seattle has nurtured its awards program's conceptual category, surveyed by the same jury that considers completed work. This category attracts fresh and well-expressed design solutions, and the participation of those whose work won't or hasn't yet become manifest in built form. And sometimes these dreams do come true.

Learn from the work. Good juries offer accessible insight that bears repeating long after the blue and red ribbons tatter. Also, the teams that create successful projects have stories to tell and lessons to teach. How to capture them? AIA Seattle has created an annual seminar series based on winning projects. This year, we asked the architects of selected projects to describe "managing for design excellence." Next year, we've invited honored clients to offer perspective.

Acknowledge collective achievement as well as winners. No one should lose anything by submitting work for review. More than that, though, all participants should gain value from comparing their own work with that of peers and from assessing the cumulative effect of their professional community. Even the brightest and broadest juries will admit they select not the best but the most provocative. Although projects selected by a jury take the spotlight at least temporarily, all entries should receive recognition as part of a body of work representing the accomplishments of the design industry and the embodiment of aesthetic and economic trends.

Take advantage of having a collection of works. Like other AIA chapters, AIA Seattle publishes every entry in a magazine-style volume widely distributed within and beyond the design community. Further, we use the entries as a source for other recognition programs and to respond to media inquiries and the many requests we receive for information about the work of local architects.

Pause to take pride. Our society of hard-working individuals can use the occasion of an awards program to extend mutual support and understanding without being too insular. A good awards program can unify, edify, glorify, and enlarge a community. Let's keep talking and learning from each other. ■

Contributions: *If you would like to express your opinion in this column, please send submissions by mail (with a disk) to Speak Out, Architectural Record, Two Penn Plaza, New York, N.Y. 10121; by fax to 212/904-4256; or by E-mail by visiting www.archrecord.com and clicking on News/Features/Dialogue. Essays must not exceed 700 words. The editors reserve the right to edit for space and clarity. Where substantial editing occurs, the author will receive text approval.*

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CIRCLE 11 ON INQUIRY CARD

MENTORS Since 1990, architectural works, whether buildings, plans, or drawings, have been protected under copyright law.

Gregory T. Gronholm is a partner in Jones & Askew LLP, an intellectual property law firm in Atlanta.



Imagine that your architectural design for a recently completed "dream house" is being copied by another architect across town. This could obviously be detrimental to your practice, but what could you do about it? What if you wanted to use the same or a similar design for another client? Would that be a problem? And what if this situation occurred with a commercial building instead of a residential one?

Such questions are addressed by laws that protect architects' designs. On December 1, 1990, the U.S. Copyright Act was changed to include "architectural works." Before then, copyright law did not protect designs of buildings other than nonfunctional monuments. Building plans were covered, but the law only prohibited actual copying of the plans themselves.

The revised copyright law protects "the design of a building as embodied in any tangible medium of expression, including a building, architectural plans, or drawings." The protected work includes "the overall form as well as the arrangement and composition of spaces and elements in the design, but does not include individual standard features."

A building is defined as a structure "habitable by humans and intended to be permanent and stationary, such as houses and office buildings, and other permanent and stationary structures designed for human occupancy." There is no distinction between commercial and residential structures. The crux of the definition appears to be the "habitability" of the structure—if you can get inside it and it wasn't built to be moved, it is probably protected.

While the designs of most habitable buildings are protected, not all designs are. The law specifically excludes certain "structures, features, or works" such as bridges, dams, walkways, and mobile homes from being registered as architectural works. The excluded features include standard configurations of spaces and individual standard features, such as windows, doors, and other staple building components. Finally, building designs published or built before December 1, 1990, are excluded.

But for current work, the news is good: copyright protection exists for architectural works from the time they are created. Of course, the work has to be original and not copied from something else. For infringement to occur, some copying must take place; no infringement exists if the alleged copier can show he or she did not mimic the original work, such as by proving there was no access to the design.

While architects' works are generally protected from the time of their creation, it is still necessary to register the copyright in order to file suit and enforce your legal rights. A copyright lawyer can readily do this, or you can file your own application with the U.S. Copyright Office.

Infringement of a copyright in an architectural work can require the guilty party to pay damages. Although the courts usually will not require completed buildings to be razed, they may stop further construction or require that a building's appearance be modified.

Architects sometimes find themselves in a sticky situation when building owners incorrectly assume that they automatically own the copyright to the designs of their buildings. This is a common misunderstanding. It's true that work produced when one is employed by someone else is typically "work for hire" and the property of the employer, but this situation doesn't apply to a building owner. Most copyrighted work produced under an independent contract will remain in the name of the independent contractor—in this case the architect—unless there is an explicit agreement to the contrary.

If the question of who owns the copyright—you or your client—has been addressed by agreement, the agreement will be the controlling factor. However, if no agreement is in place, it is likely that you, the architect, will own the copyright.

The law is clear. Once you register a copyright of one of your designs, you are able to sue anyone who is copying your work. Even without registration, it's likely you can use the same or similar designs for your other clients. ■

Questions: *If you have a question about your career, professional ethics, the law, or any other facet of architecture, design, and construction, please send submissions by mail to Mentors, Architectural Record, Two Penn Plaza, New York, N.Y. 10121; by fax to 212/904-4256; or by E-mail by visiting www.archrecord.com and clicking on News/Features/Dialogue. Submissions may be edited for space and clarity.*


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CIRCLE 12 ON INQUIRY CARD

PULSE RECORD readers were asked: Who is the world's greatest living architect, and why?

Richard Meier excels in the three areas that distinguish a great architect: timelessness, quality in detail, and human sensibility. I have heard him accused of creating cold, inhumane spaces. To the contrary: after having walked through some of his wonderfully lighted spaces, I realized that I had not felt as warmed and emotionally charged since being in some of Palladio's buildings.
—Bob Taylor
Houston

Norman Foster's work is always fresh, innovative, and energy-efficient. More important, buildings such as the Commerzbank in Frankfurt and the HongKong and Shanghai Bank in Hong Kong respond extremely well to environmental and programmatic issues. This quality, in addition to his lean-and-mean high-tech aesthetic, keeps him on the cutting edge. Many people may not be aware of this, but Foster and Partners also has a reputation for bringing projects in ahead of schedule and under budget, which is no small task.
—Michael Hyatt
Drexel Architecture Society
Philadelphia

I. M. Pei is the most dynamic architect of our time. His work fits perfectly with site and program without sacrificing any aesthetic qualities. When you progress through one of Pei's buildings, the details tell a story that keeps the public enthralled.
—Deborah Boal
Clemson, S.C.

Pushing design and engineering to new, unforeseen places is the mark of a great architect. **Santiago Calatrava** is the world's best. He is the creator of an incredibly diverse body of work, full of exciting architectural and engineering wonder. His buildings not only move the spirit, but are also often in motion themselves.
—Eric Mersmann
Hancock + Hancock Inc.
Chicago

A consistent Modernist, **Jean Nouvel** is my nomination for the greatest living architect. He brings together art and technology with flair and a sense of permanence.
—Sven Erik Alstrom, AIA
AlstromGroup
Aspen, Colo.

Is greatness determined by consistency of theory and practice? Then we must choose between **Venturi Scott Brown Associates, Agrest and Gandelsonas, Peter Eisenman,** and others. Is greatness determined by irrational exuberance, a.k.a. sheer delight? **Frank Gehry, Richard Meier,** and **Renzo Piano** come to mind. Some architects push our architectural heritage to new places, among them **Michael Graves, Williams and Tsien,** and **Steven Holl.** We should perhaps replace the question of what makes a good architect with a discussion of what makes a good building. Only then can we judge architects with a standard yardstick.
—William I. Kline
Tobey + Davis
Reston, Va.

Wake up! Individual figures can't take sole credit anymore.
—Lawrence Carcoana
MBA P.C.
Fargo, N.D.

This Month's Question

What do you think?

Jewish Museum, Berlin

Daniel Libeskind's magnum opus opened this month (see page 76). Even without displays installed, architecture aficionados are anxious to tour its challenging spaces. What do you think of the building?



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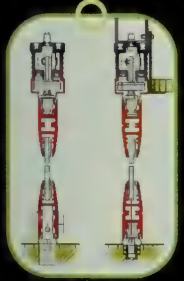
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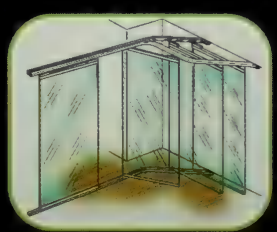
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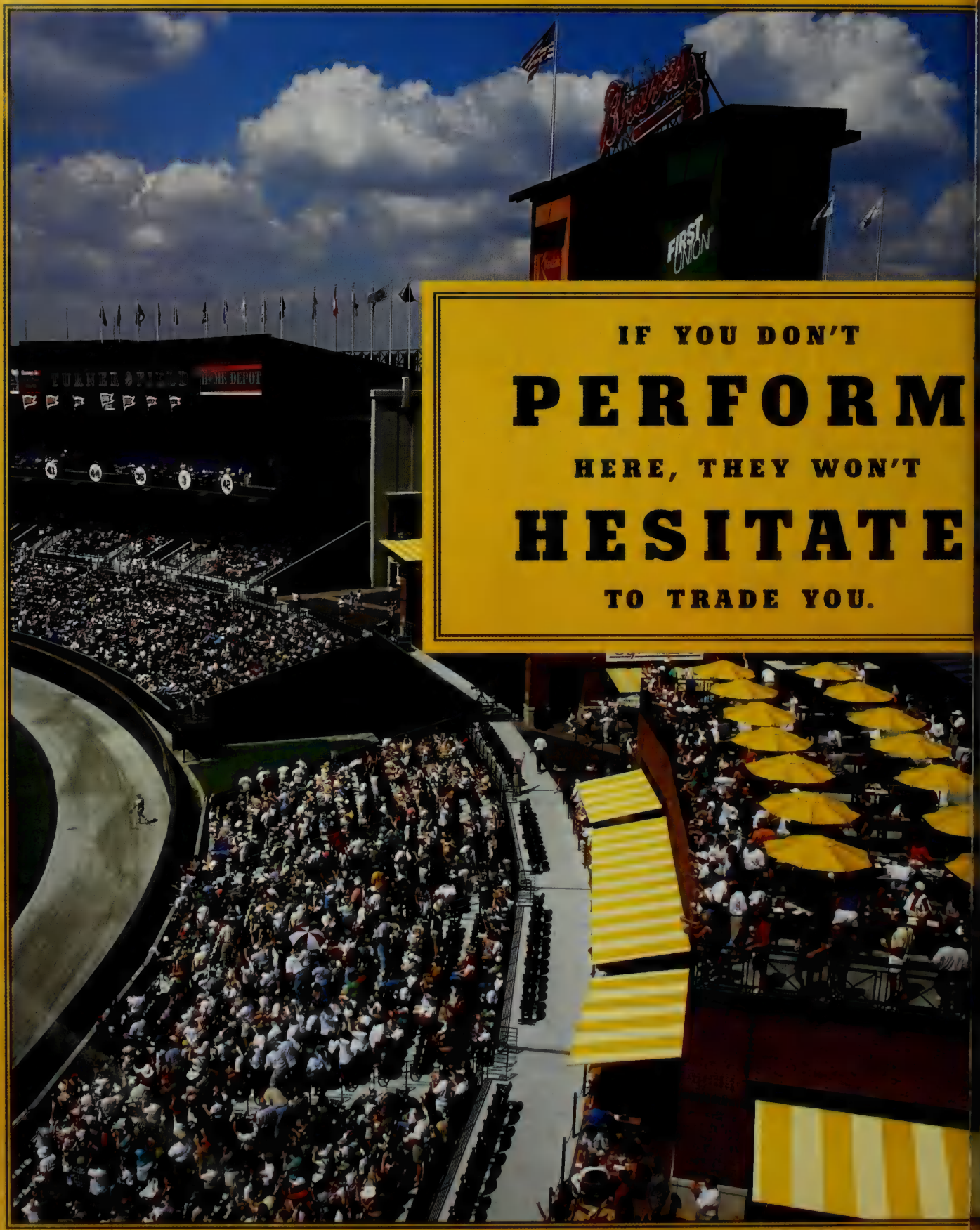


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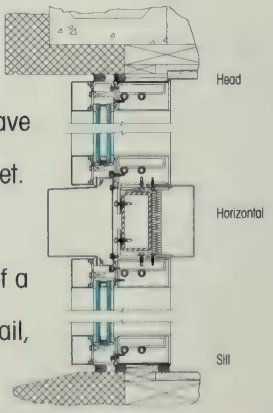
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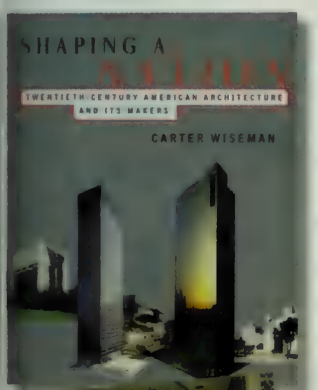
CIRCLE 16 ON INQUIRY CARD

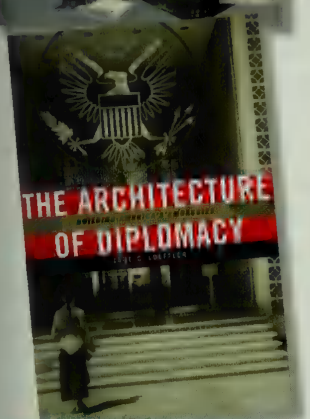
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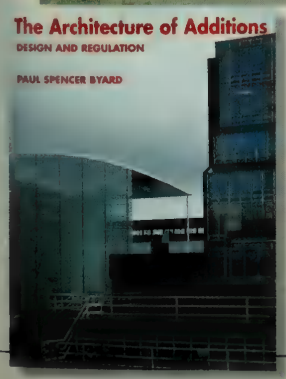
BOOKS A pair of titles survey American architects at home and abroad, while a third examines the history of building additions.

Christine Liotta Sheridan is a New York–based writer and book reviewer.

Mildred F. Schmertz, FAIA, is a former editor in chief of ARCHITECTURAL RECORD.







Shaping a Nation: Twentieth-Century American Architecture and Its Makers, *by Carter Wiseman. New York: W. W. Norton, 1998, 412 pages, $40.*

In this insightful survey of 20th-century American architecture, critic Carter Wiseman profiles some 200 architects—from Louis Sullivan and Frank Lloyd Wright to Louis Kahn and Frank Gehry—and examines their work. Yet despite its encyclopedic scope and value as a reference, this is not a dry, scholarly book. Covering all the major movements from 1900 to the present—including industrialization, Modernism, Postmodernism, architectural preservation, even the proliferation of computer-aided design—Wiseman traces the development of the American built environment in the context of a constantly changing and evolving society. Writing with depth and good humor, Wiseman deftly chronicles one of the most dramatic and spectacular periods of this country's architectural history. *Christine Liotta Sheridan*

The Architecture of Diplomacy: Building America's Embassies, *by Jane C. Loeffler. New York: Princeton Architectural Press, 1998, 306 pages, $28.*

An architect's ability to compromise with a client can be a welcome attribute. In the complex world of embassy design, it's a necessity. Insightful and meticulously researched, this fascinating history of America's embassy-building program is filled with stories of international intrigue and bureaucratic snarls. Beginning with the dawn of the Cold War, Loeffler explores the forces and challenges—political, financial, social, symbolic—that affect such projects. For instance, the United States Embassy in Stockholm, Sweden (1951–54), which has floor-to-ceiling glass walls and which Swedish architects described as an "architectural Marilyn Monroe," is both visually and literally open, expressing American optimism about democracy itself. More recently, however, the threat of terrorism has led to increased security and more defensive design. Building an embassy is a supremely complicated feat, this book ably shows, one requiring as much diplomacy as design. *C.L.S.*

The Architecture of Additions: Design and Regulation, *by Paul Spencer Byard. New York: W. W. Norton, 1998, 191 pages, $40.*

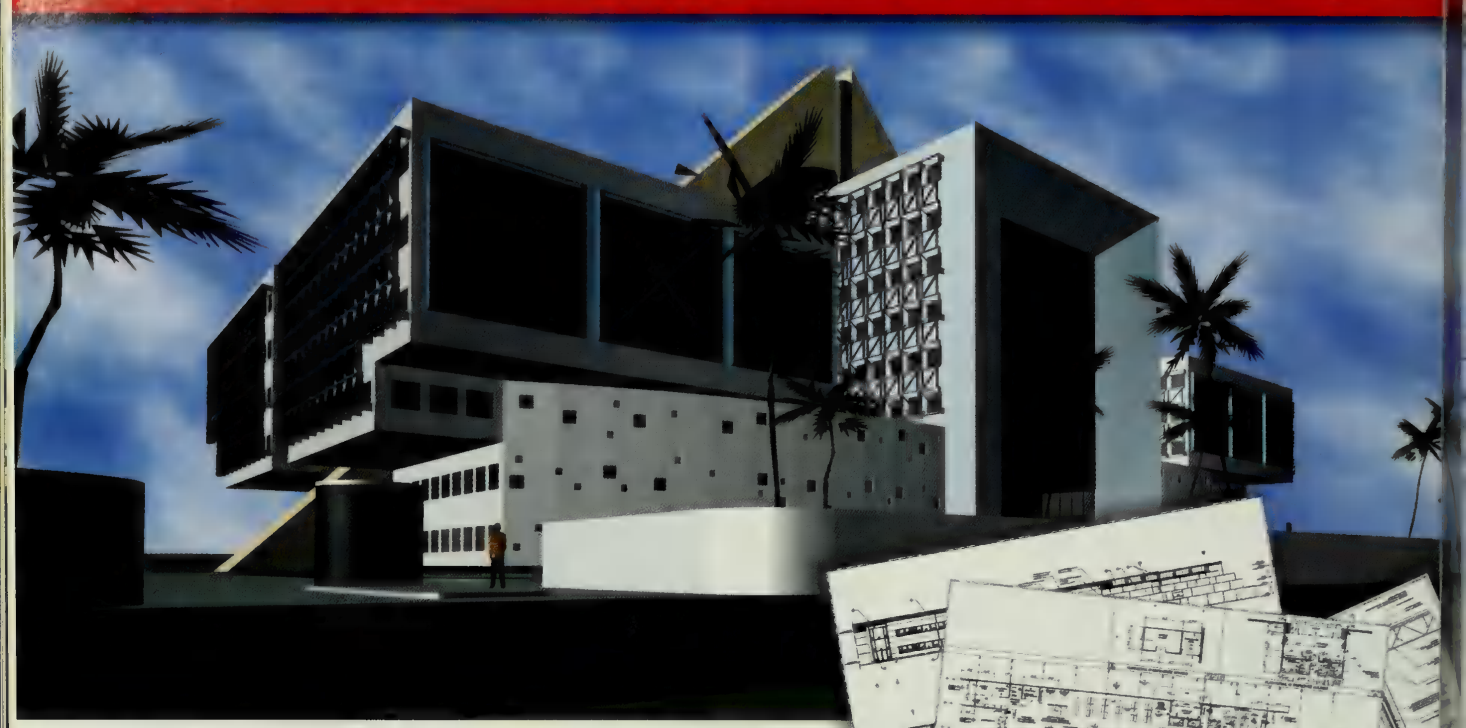
This excellent book emerges from Paul Spencer Byard's double career as an architect and a lawyer. Combining wide-ranging scholarship in the field of architectural history and a deep understanding of design and construction as art, Byard examines expansions to outstanding European and American buildings from the 14th century to the present. His purpose is to demonstrate with 58 examples how additions can sustain or even enhance the beauty and symbolic power of buildings, while accommodating changing functions.

Byard begins with three masterworks, taking the reader on a splendid tour through the centuries. First up is Saint Peter's in Rome, which represents the successive efforts of late Renaissance and Baroque masters: Bramante, Michelangelo, Maderno, and Bernini. Next is the Queen's House and the Greenwich Royal Naval Hospital in Greenwich, England, which began as a 17th-century Palladian country house by Inigo Jones, was added to by John Webb, and was completed in the early 18th century by Christopher Wren. Finally, Byard presents the 14th-century Castelvecchio in Verona, which was transformed into a museum by Carlo Scarpa in 1964.

Byard's survey of 20th-century additions explores the expressive possibilities of Modernism, and includes a critique of such controversial late-20th-century works as Peter Eisenman's Wexner Center in Columbus, Ohio, Frank Gehry's "Fred and Ginger" building in Prague, and two projects by Daniel Libeskind—the Jewish Museum in Berlin and the Boilerhouse at London's Victoria & Albert Museum.

Looking at these examples, Byard says, "Every act of preservation is inescapably an act of renewal in the light of a later time, a set of decisions about what we think something was and about what we want it to be and to say about ourselves today." He adds that "the value of preservation is only partly in the accuracy and breadth of its understanding of the past." It is also, Byard says, the dialogue between old and new and what that says "about continuity and difference" that interests us. *Mildred F. Schmertz, FAIA*

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CIRCLE 17 ON INQUIRY CARD

EXHIBITIONS A series of shows in Madrid underscores design dichotomies between Iberia and its former colonies.

BY DAVID COHN

Ibero-American Biennial of Architecture and Civil Engineering. Madrid, Spain. *October–November 1998.*

The first Ibero-American Biennial of Architecture and Civil Engineering, held in Madrid in October and November, was a bundle of incongruities.

In the first place, it brought together, on theoretically equal terms, work from the former colonial powers of Spain and Portugal and from many of their former colonies in South and Central America—13 countries that are by no means equal in terms of economic development or resources. Second, it brought together architecture and civil engineering, exhibiting museums and historic restorations beside gas lines and highway interchanges, evidence perhaps that displaying the fruits of public spending interested the participating countries more than the specific concerns of the two professions.

The event and its related conferences were organized by the Spanish government in collaboration with Spain's professional associations and five of its public universities. It coincided with a conference of Ibero-American leaders held in Porto, Portugal, in October.

The inequality of the relationship between colonial powers and former colonies was evident in the main exhibit, with works by Spain and Portugal's most renowned names (including Alvaro Siza, Rafael Moneo, and Juan Navarro Baldeweg) lined up beside modest works such as a $100,000 effort to restore original earth pigment colors to the

David Cohn is an international correspondent for ARCHITECTURAL RECORD. He lives in Madrid.



González de León and Zabludovsky's National Auditorium (above) and González de León's Arcos Bosques (below), both in Mexico City.

houses of Potosí, Bolivia, by architect Luis Prado Rios. Except for Mexico, no Central American countries were present, and other Latin American countries did not always bring their most ambitious work.

Among the outstanding projects showcased were the Locomotive Division Hospital by João Figueiras Lima in Salvador Bahia, Brazil, winner of a Biennial award; the No Guarujá House on the Brazilian coast, by Marcos Acayaba; and an office building in Santiago by Enrique Browne and Borja Huidobro.

The two disciplines found a point of encounter in an exhibition on Uruguayan architect and engineer Eladio Dieste (1917–96), an inventor of thin-shell vaulted structures composed solely of clay tiles, reinforcing rods, and mortar. One showcased example was the parallel catenary vaults of the Turlit Omnibus Station in Salto, Uruguay, that are 3½ inches thick and form a light canopy spanning 55 yards. Another was the 1979 Port Depository in Montevideo, whose undulating vaults break like waves to admit central skylights. Dieste's sophisticated, sculptural forms are low-cost, low-tech, and highly efficient in their use of materials, making them ideally suited to developing economies.

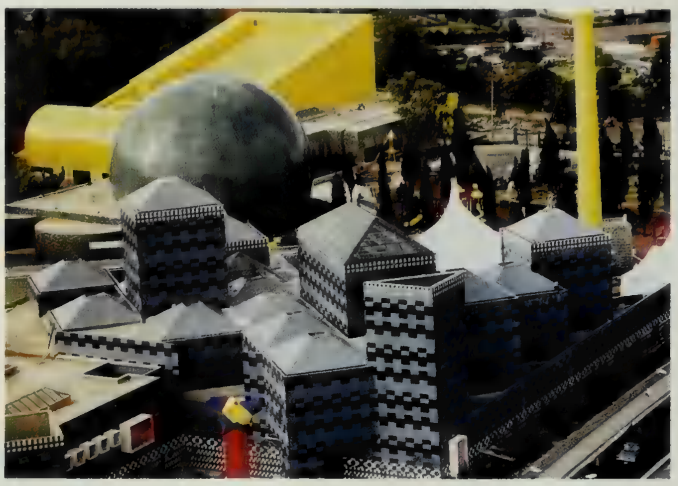
Three other exhibitions focused



on Mexican architecture. The work of veterans Ricardo Legoretta and former partners Teodoro González de León and Abraham Zabludovsky was featured in two monographic shows. Forty works by 10 younger firms were shown under the title New Mexican Architecture, including projects by Enrique Norten, Isaac Broid, the LBC Group (Alfonso López Baz and Javier Calleja), and the team of Albin, Vasconcelos, and Elizondio.

González de León, Zabludovsky, and Legoretta have built careers with large-scale corporate and institutional commissions. They practice a Modernism adapted to the climate and cultures of Mexico, with works that often feature large patios partially shaded by trellises and cooled with pools and fountains; solid sculptural volumes, opaque walls, and deep chamfered windows; and monumental gateways, terraces, and forms recalling pre-Columbian and colonial grandeur.

While Legoretta is known for saturated colors in stucco, González de León and Zabludovsky have perfected, over the last 30 years, the use of rugged concrete finishes. González de León worked briefly with Le Corbusier in the 1940s. But in contrast to the raw urban grit of the French master's Brutalist followers, the buildings he designed with Zabludovsky, such as the 1973 Mexican Embassy in Brasília, are expansive and sensual, embracing the landscape and drenched in sun and shadow.

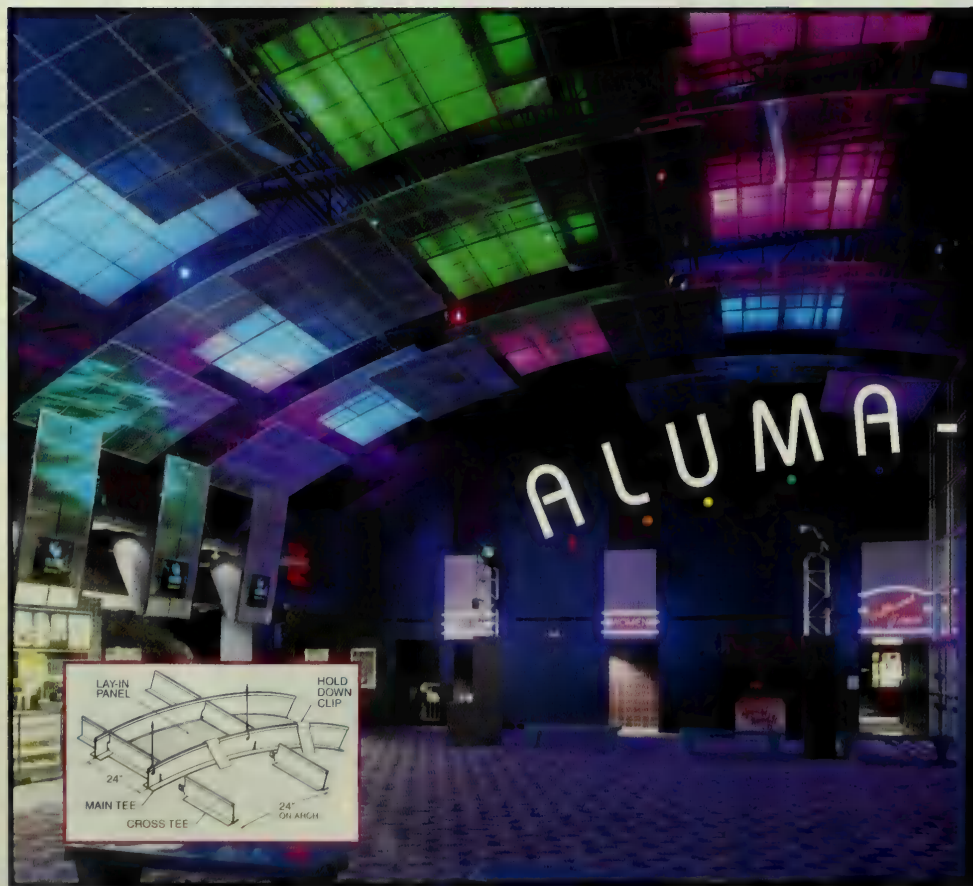


Mexico's Papalote–Museo del Niño, by Legoretta Arquitectos.

The exhibition revealed that González de León's impressive independent commissions of the 1990s, such as the Federal Justice Center, the National Music Conservatory, and the 32-story Arcos Bosques offices, are composed with a loose inventiveness and an economy of gesture.

Legoretta's equally expansive designs feature intuitive, experience-based compositions of geometric forms amid gardenlike patios. Examples include the 1981 Hotel Camino Real in Ixtapa, where terraced rooms cascade down a hillside, Mexico City's National School of Plastic Arts, and the Televisa administrative complex. His works in progress in the United States, such as the Mexican Museum in San Francisco and the Dallas Latin Arts Cultural Center, both on tight urban sites and nonprofit budgets, haven't allowed him such freedom.

An exhibited photograph of a private commission in California, the Rancho Santa Fe House of 1987, captures Legoretta's spirit more fully: an ample pool, extending into the landscape, is engulfed in the airy shaded volumes of the house by high trellises and monumental piers, like a Roman bath. ■



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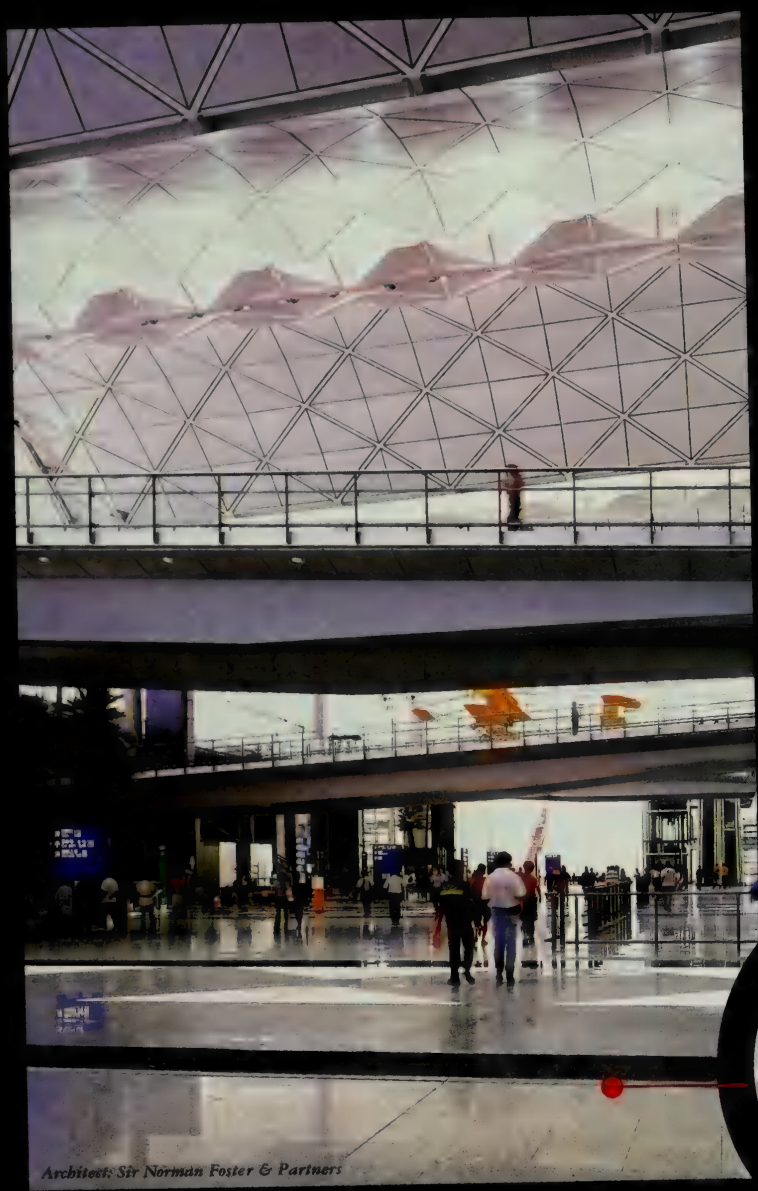
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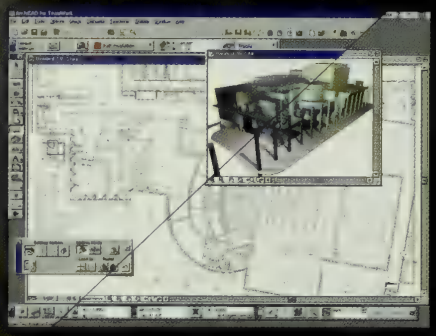
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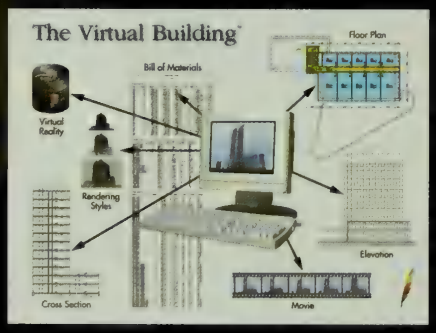
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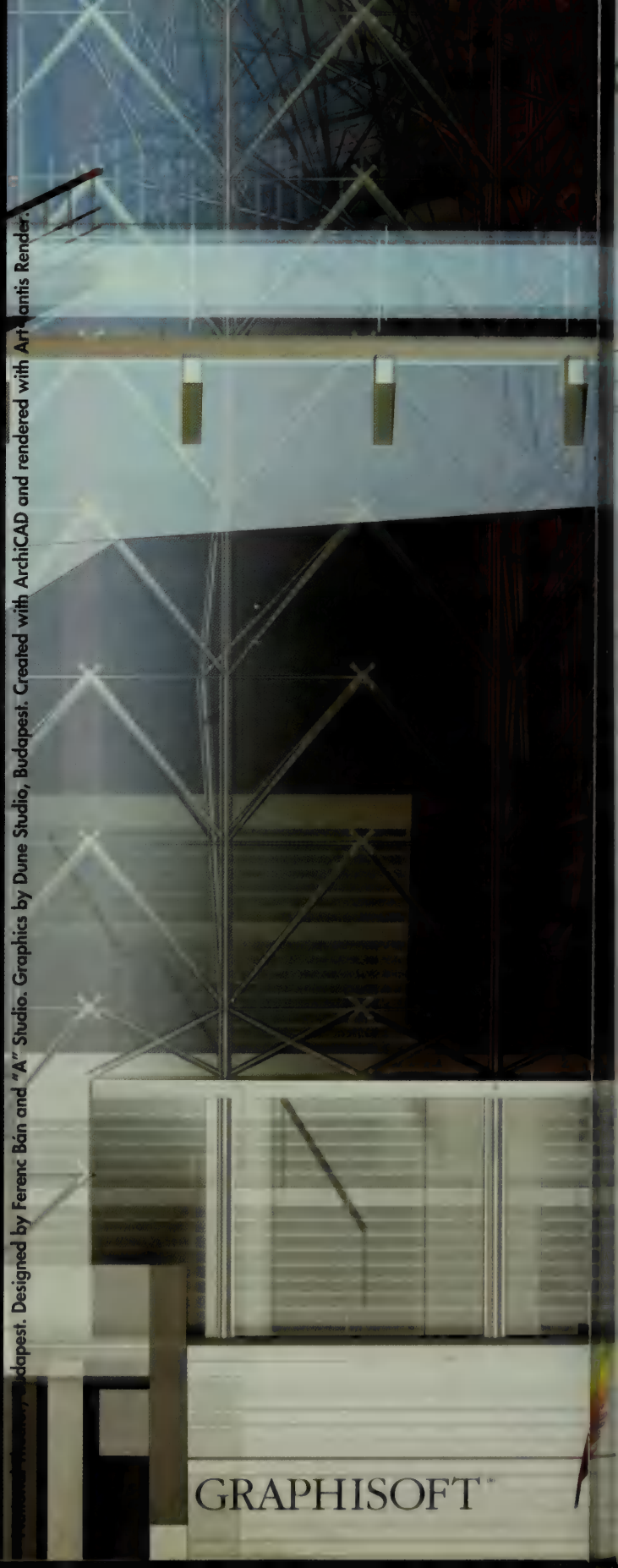


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*Jerry Laiserin, CADENCE Magazine



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CORRESPONDENT'S FILE As construction continues to boom in Seattle, a mayor and a mogul are shaping the future look of the city.

BY SHERI OLSON, AIA

Sheri Olson, AIA, is a contributing editor at RECORD.

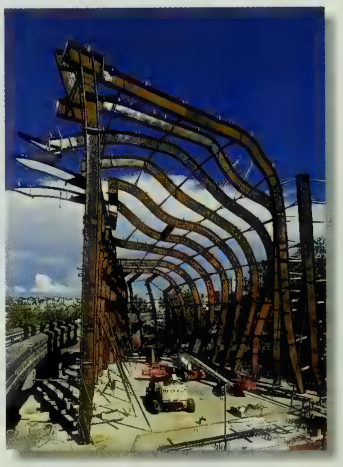
Over the past decade, few—if any—American cities have grown in size and cachet as quickly as Seattle. And the rapid expansion shows no sign of abating. A high-water mark in the city's building boom—a record-breaking $1 billion worth of building permits in 1997—turned out to be just a drop in the bucket, as the value of permits for 1998 surpassed that figure by some 20 percent.

Local residents and architects are wondering how long this phenomenon can last. But a better question might be: What will Seattle look like when it is over? Two individuals are in unique positions to shape the reply: Mayor Paul Schell, Hon. AIA, and Microsoft cofounder (and billionaire) Paul Allen.

Schell's plan to manage the region's growth was a decisive factor in his election, in 1997. During his campaign, Schell promoted increased in-city densities as a way to combat sprawl—a difficult battle in a region that has experienced an almost 30 percent increase in population in less than 20 years. While past public housing policies concentrated on the homeless and the poor, Schell expanded the focus to include moderate-income families who are being priced out of the market. (The shortfall between supply and demand has driven the median price of a single-family home in Seattle up to $209,950, an estimated 20 percent increase over last year.)

Schell's background gives him a unique understanding of the role design can play in addressing urban problems (see interview, page 52). As Port Commissioner, he was involved in the development of the waterfront and the popular Bell Street Pier, designed by Hewitt Architects (then known as Hewitt Isley). As a developer, he pioneered downtown living with several projects. In a city known for its reserve, Schell is outspoken and not afraid of proposing untested ideas.





Millennium Tower, a mixed-use project downtown (left); Frank Gehry's Experience Music Project taking shape (above).

The Housing Action Agenda, Schell's first major initiative as mayor, outlined ways to increase the city's housing supply, from streamlining the building permit process to providing incentives for "good, Seattle-specific" design. A city ordinance was passed to promote design demonstration projects as a means to develop housing solutions.

Heeding the call, AIA Seattle mounted a competition calling for proposals for housing that would be unbuildable under existing codes. The schemes were not as surprising as the low number of entries. Jerry Finrow, a juror and the dean of the University of Washington's College of Architecture, believes the turnout was less an indication of lack of interest than of the hot economy; architects were simply too busy to compete.

For his part, Schell points to the new symphony building, Benaroya Hall (RECORD, February 1998, page 36), designed by Loschky, Marquardt & Nesholm (LMN) of Seattle, as an example of an appropriate expression for the city's urban architecture. "It shows a friendly face to the neighbors and avoids ostentation," he explains.

This tendency toward self-effacement has produced a series of sturdy but otherwise uninspired public buildings. But the new Civic Center planned for downtown may finally buck that trend. Seattle firms



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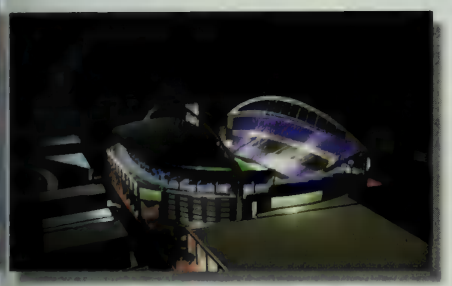
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Weinstein Copeland Architects and Hewitt Architects are working on a master plan for almost 200,000 square feet of administration space, a municipal courthouse, a city hall, and a large public gathering space.

Schell has also called on Seattle's high-tech millionaires to help create a "city of modern-day Carnegies." Microsoft chairman Bill Gates recently stepped up with a $20 million donation to the Seattle Public Library. Apparently, Gates was inspired by the overwhelming public support for a bond measure that provides almost $200 million to replace the central library downtown, open three new branches, and renovate two dozen others. Gates's gift will help build a state-of-the-art facility on the site of the existing outdated, undersized library.



While Gates and his $50 million Lake Washington home get the lion's share of Microsoft-fortune notoriety, it is Paul Allen who may become Seattle's Baron Haussmann. Allen's spokespeople shy away from any suggestion that he has a grand plan for Seattle, but three projects he is developing hold the potential to transform the city.

Allen's First & Goal Inc., which owns the Seattle Seahawks, is picking up a portion of the $425 million tab for a new football stadium. Voters approved $300 million in public financing for the project in an unusual referendum that was actually underwritten by Allen. Ellerbe Becket of Kansas City is the designer of the 72,000-seat stadium, which should be ready for kickoff in 2002. The 23-year-old Kingdome will be demolished to make way for the stadium and an exhibition center by LMN. Now under construction across the street is Safeco Field, NBBJ's $500 million retractable-roof baseball stadium, where the Mariners will play.



Paul Allen (left) is financing many new projects, including the new Seahawks Stadium (below), designed by Ellerbe Becket and slated to open in 2002.

Low rents have historically drawn artists and galleries to the neighborhood around the stadium, and there is concern that the changing economics are a threat to the area's quirky character. With prodding from the city, First & Goal recently signed an agreement giving it the option to develop market-rate housing north of Seahawks Stadium in what would have been a parking lot and staging area.

Across the railroad tracks that border the eastern edge of the new stadium site, Allen's Vulcan Northwest Inc. (another of his many development firms) is renovating Union Station as the centerpiece of a $250 million development. Located at the point where freight, commuter, and light-rail lines converge, this area is fast becoming the heart of a new downtown transportation district. When it is completed, Allen will sell the 90-year-old station for $1 to Sound Transit—the agency building the $3.9 billion regional light-rail, commuter rail, and express bus system—to house its headquarters. NBBJ is designing over a million square feet of office, retail, and hotel space in five new buildings surrounding the station.

King Street Station, a block



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north of Seahawks Stadium and a block west of Union Station, is being renovated by Hardy Holzman Pfeiffer's Los Angeles office, in association with local architects Otak, as a hub for Amtrak service and the new commuter rail. Over 17,000 passengers a day are expected to pass through this neo-classical station.

While Allen's office and stadium projects are in the realm of a typical wealthy developer, his Frank Gehry–designed homage to Jimi Hendrix expresses an exuberance that comes only with vast resources. The $100 million Experience Music Project (EMP), located at the base of the Space Needle and pierced by the monorail (both built for the World's Fair in 1962), will feature traditional and interactive exhibition spaces, as well as performance halls. The opening has been pushed past its original date of next summer, but the warped steel beam structure is in place and already grabbing attention. The 140,000-square-foot museum will ultimately be enclosed by more than 250,000 square feet of undulating red, gold, and blue stainless-steel panels.

Catering to the nouveau riche has transformed Seattle's downtown retail scene from the bleak picture of only 10 years ago, when several major department stores closed their doors. This summer, when Nordstrom moved into its new flagship store and corporate headquarters downtown—a $100 million renovation project by local firm Callison Architecture—the epicenter of the shopping district shifted with it. Across the street is the posh Pacific Place mall, designed by NBBJ and Elkus Manfredi of Boston, which opened last year. A block away is the site for One Convention Place, a 16-story office tower designed by Callison. The construction of this project, along with the 20-story mixed-use Millennium Tower by Zimmer Gunsul Frasca, will mark the end of a seven-year drought in office space construction.



NBBJ's Pacific Place, part of Seattle's rejuvenated downtown.

To meet pent-up demand, five million square feet of new office space is planned for downtown, along with over 2,000 residential units. Among the projects is Hewitt Architects' Harbor Steps, which will add 750 housing units and link the city's cultural spine to the waterfront with a dramatic urban staircase.

Though excitement for all this growth is still high, it may prove costly. In a recent study, Seattle tied with Los Angeles for the country's worst traffic congestion. The Sierra Club says that sprawl around Puget Sound is threatening the Chinook salmon. The same conditions that endanger salmon are eroding the quality of life that makes the region so attractive. It is clear that to address the environmental implications of an expanding city, public officials like Mayor Schell and private developers like Paul Allen must find new and innovative ways to work together. ■



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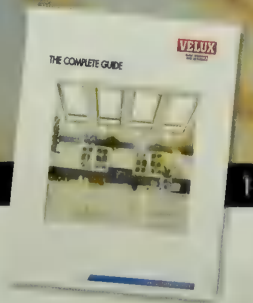
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MAJOR MUSEUMS AND MEDALS: FRANK GEHRY'S BIG YEAR

After a two-year hiatus, the American Institute of Architects has a new Gold Medalist: Frank O. Gehry, FAIA, will receive the AIA's highest individual honor at Accent on Architecture in Washington, D.C., on February 6. Gehry, the Santa Monica, California, architect who has created a body of provocative, expressionistic work, becomes the 57th recipient of the medal. His name will be etched in stone at the AIA headquarters beside those of previous winners, including Thomas Jefferson, Louis Kahn, and Frank Lloyd Wright.

The Gold Medal comes on the heels of Gehry being given the National Medal of the Arts, presented at the White House this fall by President and Mrs. Clinton. The Pritzker Prize, which included a significant cash award, came almost 10 years ago, in 1989. After all this, how does it feel to get the AIA Gold Medal? Has the glory from multiple sources begun to blur?



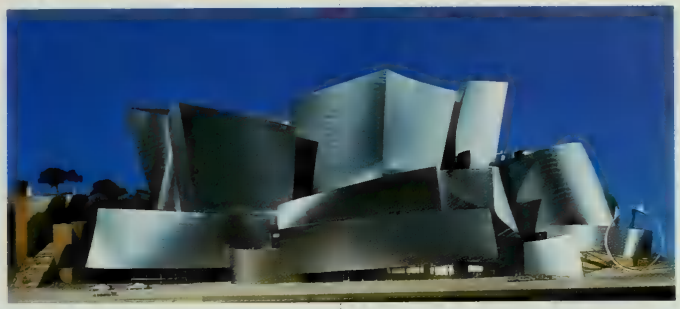
Shortly after the Gold Medal announcement, I traveled to Santa Monica to find out. Gehry and I met in two locations: his office, which sprawls factory-like through a two-story, Holiday Inn–esque building along an alley; and Gehry's favorite breakfast haunt, a deli on Wilshire Boulevard. On a cool December morning, Gehry wheels into the parking lot of the deli in a black Lexus. It is his only extravagant gesture.

Dressed modestly in an open-collared shirt, he banters with the waitress, resembling not so much a highly touted genius as one of the usual crowd ordering veggie omelets and coffee. He has recently returned from Panama, his wife's birthplace and the site of a charrette he conducted for undeveloped property along the Panama Canal. Relaxed and in a positive frame of mind, Gehry is primed for conversation.

He wants the question about the Gold Medal asked; he has obviously been mulling it over. He speaks quietly and, in a customary way, looks downward. "I never thought I'd get it, because I thought my work was weird," he says. He wonders out loud whether other architects think he's "a fraud . . . [that] I don't know anything about structure and I wouldn't know how to run an architectural business and I wouldn't be a realist." The Toronto native sees himself as an iconoclast, outside the mainstream of convention and the profession.

Gehry's reservations come from his earlier years; for a long time, when other architects were being discussed as the "blacks, the whites, or the grays," he had no thematic or coloristic cachet attached to his name. He remembers building a firm in which everyone got paid on time and that didn't borrow money—and wasn't considered chic. He expresses admiration for another group of outsiders he identifies with: artists, who have been frequent collaborators and have provided him with inspiration.

Gehry's growing recognition among the cognoscenti and the opening of the Guggenheim Bilbao, a seminal project, dramatically changed his status, propelling his work and his name onto magazine covers. Success, however, hasn't altered his calm demeanor. Characteristically, Gehry maintains his poise in triumph or difficulty. He seems disappointed but unfazed by temporary setbacks, such as Bard College's reservations about his design for a new performing arts center or the Guggenheim's currently thwarted intentions for a major new facility in Manhattan. "I still leave at six o'clock and I don't work on weekends." In fact, he's taking flying lessons—for jets.



Gehry's model for the Walt Disney Concert Hall in Los Angeles.

In describing Gehry's contributions, the press has often resorted to hyperbole—provoked, in part, by the endorsement of tastemakers such as Philip Johnson, who reported weeping repeatedly on visiting the Bilbao museum. As for Gehry, he has returned to Bilbao and is pleased by the way the museum showcases a variety of art; but rather than basking in its accomplishment, he "sees all the mistakes." While he thinks the museum's large gallery space is not fully resolved—that it swallows all but the most monumental pieces—he believes that "the kid has to grow up on its own."

Clearly, for Gehry the joy lies not in what people say but in the doing. He professes to lose interest once client involvement ceases, stating that he "loves the process most of all. It's a people process that is better than the final building." So much so, he says, that there are three completed projects he has never visited: "There was nobody to celebrate with, so I didn't go."

Gehry's "freedom to play," the essential creative expression that characterizes his architecture, comes from pragmatic underpinnings. His office, which prides itself on innovative practice, tends to the details, taking pains to translate his sculptural forms into technical drawings for real buildings. "They don't leak," he says.

He repeatedly cites the work of his two partners, James Glymph and Randy Jefferson, in preparing production documents. Because of them, he says, "I sleep at night." In addition, his wife works with him and handles the checkbook, and "that gives me comfort." His team of 120 employees is made up of a young crowd in blue jeans that gathers in small groups to scrutinize the small models Gehry uses to study every project. The office is experimenting at the intersection of computer technology and design.

Gehry's fame has increased even though he stopped entering design award competitions years ago. "I won a lot of them and then I realized that I was pushing the young kids out."

But this most recent honor has special meaning for him. Taking a moment to consider the Gold Medal, Gehry looks up from his cup of coffee and, with soft emphasis, makes his point: "It's a wonderful honor because it is like in your family: you think your brothers don't think much of you, and then you find out they really love you. That's how it feels." *Robert Ivy, FAIA*

For a more complete transcript of RECORD's interview with Frank Gehry, visit www.archrecord.com after January 18. A comprehensive overview of Gehry's contributions and his new work will be published in the May issue of RECORD, together with longer excerpts from the interview.

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ITALY HOLDS ARCHITECTURE FESTIVAL TO BOOST INTEREST AND DIALOGUE

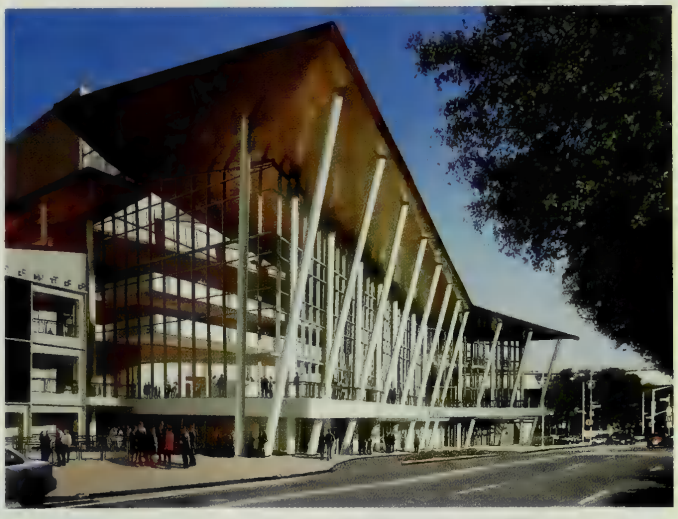
The Italian government is taking real action to promote good design. The country's first Architecture Festival was held in late November, with the goal of renewing interest in architecture, opening dialogue between the public and government administrations, and asserting the importance of architecture in the European political arena. In cities and towns throughout Italy, local chapters of the National Architecture Council organized exhibits and conventions, covering topics ranging from architecture in cinema to the restoration of historic buildings.

Other events and activities included "monument adoption," educational programs for children, the lighting of significant public spaces and buildings, and topical window displays in bookstores. To publicize Italy's modern architectural heritage, participating city mayors put plaques on noteworthy works from this century, such as Giuseppe Vaccaro's post office in Naples and Adalberto Libera's Villa Malaparte.

Before the festival, a series of events was held in Assisi, near the epicenter of last year's big earthquake. The National Prize for Architecture was awarded to one of architecture's elder statesmen, Ignazio Gardella, best known for his Antituberculosis Dispensary in Alessandria, dating from 1933.

The following day, during the First Conference for Architecture Policy in Europe, Italy's newly appointed Culture Minister, Giovanna Melandri, followed the lead of her predecessor, Walter Veltroni, by underscoring her commitment to drafting new legislation regarding architecture.

Critic and historian Bruno Zevi asserted that legislation would be a necessary step in removing architecture "from the humiliating conditions in which it finds itself today." Melandri defined architecture as being in the public interest and would like the new law to mandate the commissioning of an architect for all building activity. This would be a drastic change from the current situation, which involves a conflicting superimposition of the professional practices of architects, engineers, and surveyors. *Ilene Steingut*



THE LATEST IN THE LONE STAR LINEUP: STERN'S HOUSTON ARTS CENTER

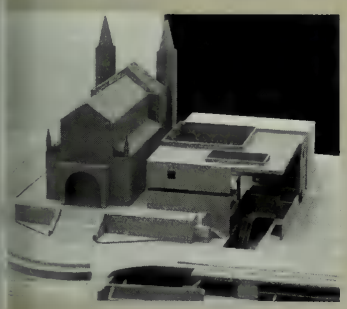
As part of what is becoming a Texas performing arts center sweepstakes, the Houston Music Hall Foundation has unveiled plans for the Hobby Center for the Performing Arts, to be designed by Robert A.M. Stern, FAIA. The announcement follows the opening of Fort Worth's Bass Performance Hall in May and the announcement of a proposed $250 million performing arts center in downtown Dallas.

The Hobby Center will include a 2,650-seat theater for Broadway-style musicals and a 500-seat proscenium theater for smaller arts groups. A second building, containing administrative offices and a school of musical theater, will be located next door. "We want to re-create the festive quality of the old New York theaters, where there's a show before the show, but also preserve the intimacy," says Stern.

The center features a monumental steel and glass facade, bent slightly to set off the two theaters and covered by a hovering copper roof. In the middle sits a three-story, trapezoidal lobby with walls that aren't parallel and columns that actually hold something up—exotic elements in Stern's resolutely historicist work. "Houston is a new town, so to come in and propose a classical building here would not be appropriate," he told reporters.

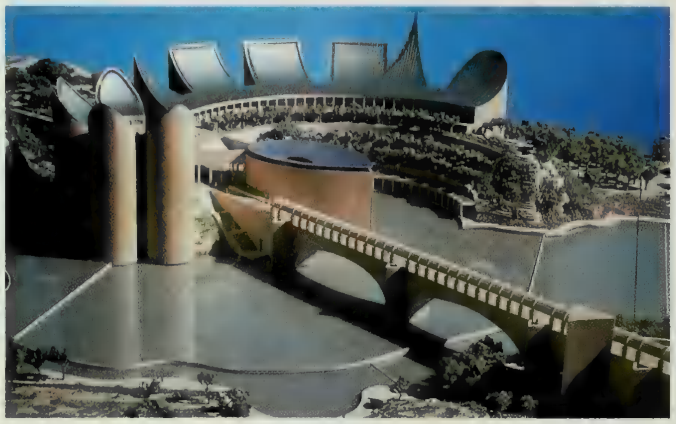
The main theater incorporates fanciful borrowings from the "atmospheric" Broadway theaters of the past, Stern says, including fiber-optic stars to create the illusion of an outdoor garden at night. The Hobby Center, named for one of Houston's leading philanthropic families, is being built largely with private funds. Around $65 million of the $85 million budget has already been raised. Construction will begin next spring, with completion anticipated in 2001. *David Dillon*

MONEO'S PLAN FOR THE PRADO **Spanish architect Rafael Moneo has won the second competition to build an addition to the Prado Museum in Madrid, Spain's Ministry of Culture has announced (RECORD, December 1998, page 44). His design was selected from projects by nine of the 10 finalists in a 1996 open international competition that ended without a winner. Moneo's red brick building will be located behind the museum on the site of a ruined 18th-century cloister. It will contain temporary exhibition galleries, restoration studios, underground storerooms, and a library—with a reading room occupying a portion of the restored, skylit cloister. An underground connection below an existing street will lead to the back of the main building, where a 400-seat auditorium, cafeteria, and other visitor services will be added under a glass and steel roof. The budget for the project is $25 million, and construction is scheduled to be completed in two years.**



Moneo's building is the main element of a larger expansion program. Administrative offices were moved to an existing building early this year, freeing space in the museum for new galleries. The Casón del Buen Retiro, long a Prado dependency, will be restored by architect Jaime Tarruel for the collections of 19th-century art, and the nearby Army Museum, which occupies a remnant of a 17th-century royal palace, will be taken over to allow restoration of the throne room of King Philip IV.

While the 1996 competition sought an overall solution for the museum's dependencies and urban surroundings, the newer contest won by Moneo was based on a carefully defined program and volumetric organization for a single intervention. Moneo told the press that "the museum's planners evidently learned a great deal" from the first event; his new design is more reserved than his first submission, which featured a large portico spanning the street between the original building and his addition. ***David Cohn***



WORLD'S TALLEST TOWER, SIKH CENTER AMONG INDIA'S NEWEST AMBITIONS

India is a country of many languages and ethnicities, and its architectural projects are no less diverse. In November, ground was broken in the state of Punjab for the Khalsa Heritage Memorial, a new museum complex showcasing Sikh history and culture, with a design by Moshe Safdie and Associates of Boston. Meanwhile, the Maharishi Mahesh Yogi has announced his own towering goal: a center for his followers that, if constructed, would be the world's tallest building.

The 250,000-square-foot Khalsa complex (above) is situated on a 75-acre site straddling a ravine and will include two main buildings. The first will house a library, exhibition galleries, an auditorium, and a meeting room, while a second structure will contain permanent galleries devoted to an exhibition on the history of the Sikh people and a memorial to the Khalsa, a religious doctrine developed 300 years ago. (The Sikh religion, founded over 500 years ago, has a following of over 20 million people worldwide.)



A pedestrian bridge will connect the two parts and will also house a public restaurant. At the bottom of the ravine, a series of small dams will create a network of reflecting pools, surrounded by arcades, outdoor exhibits, picnic grounds, and a park. The museum is slated to open in three years.

The Maharishi Mahesh Yogi, the transcendental meditation guru who came to fame in the West as the Beatles' sometime spiritual leader, is intent on leaving his mark: plans call for a 2,222-foot skyscraper dedicated to his teachings. Minoru Yamasaki Associates (MYA) of Rochester Hills, Michigan, is designing the building, though not much else has been decided. Part of a foundation was laid in November, but the construction schedule is still being determined and a budget hasn't been revealed.

MYA—which designed New York's World Trade Center—has envisioned a pyramidal building (left) that would go up on the outskirts of Jabalpur, an industrial city in central India. If completed, it would be 729 feet taller than Malaysia's Petronas Towers, currently the tallest-building titleholder. About 60,000 disciples of the Maharishi (who says he has some five million followers overall) would occupy the enormous edifice. *Soren Larson*

HAGUE MUSEUM FINISHES OVERHAUL, BUT NOT WITHOUT CONTROVERSY

After three years and an investment of more than $25 million, the Haags Gemeentemuseum (Municipal Museum of The Hague) is open to the public once again. The museum was the last major work of Hendrik Berlage, considered to be one of the greatest Dutch architects of the modern era.

Berlage died in 1934, a year before the museum was completed, but his design has withstood the test of time and influenced generations of museum planners. By removing the barriers between art and viewer and dividing the exhibition space into small, intimate rooms, Berlage aspired to an accessibility that departed from the norms of his time. For his strongly horizontal, two-story scheme, Berlage made extensive use of daylight by capping large expanses of the museum with glass and by devising elaborate systems for controlling lighting conditions.

In restoring the museum, architect Job Roos of the firm Braaksma & Roos was especially challenged by the difficulty of replicating the materials of the 1930s. Considerable experimentation was required, for example, to develop acceptable replacements for more than 100,000 yellow bricks for the exterior walls and thousands of brick-red, mustard, and gray-green floor and wall tiles on the interior.

Custom-designed features, such as brass window frames and the glass roof, required custom solutions during the restoration. "The building is itself a part of the collection," says Roos. The most far-reaching and costliest aspect of the project was the creation of a new exhibition space for the museum's costume collection under the existing sculpture garden. Construction was complicated by a high water table and the sandy ground on which the museum rests.

The reopening of the museum in October was also the occasion for the unveiling of its newest acquisition, Dutch painter Piet Mondrian's *Victory Boogie Woogie,* purchased for about $40 million by the Dutch National Bank earlier this year as a gift to the Dutch people.



The high price paid for the Mondrian provoked a lively debate, but no sooner had it died down than the Gemeentemuseum was embroiled in a new controversy: during the renovation, *Wall Drawing 373,* a fresco by American conceptual artist Sol LeWitt installed in 1985 in a stairway, was destroyed. Works by three other artists were also removed.

LeWitt says that the museum broke a promise to maintain *Wall Drawing* on permanent display—a claim supported by former museum director Theo van Velzen. But current director Hans Locher says LeWitt's work was "conceptual" in nature and can be easily re-created. Locher told the Dutch newspaper *De Volkskrant* that a decision was made to highlight the original architecture, that restoration of LeWitt's work isn't a priority, and that, in any case, no funding is available at this time.

Another former director, Rudi Fuchs, told *De Volkskrant* that "you can defend Locher's decision to let the architecture speak for itself, since the building is part of the collection. But seeing how the work of Sol LeWitt and the architecture have become one, I think I would have done things differently." *Jim Wake*

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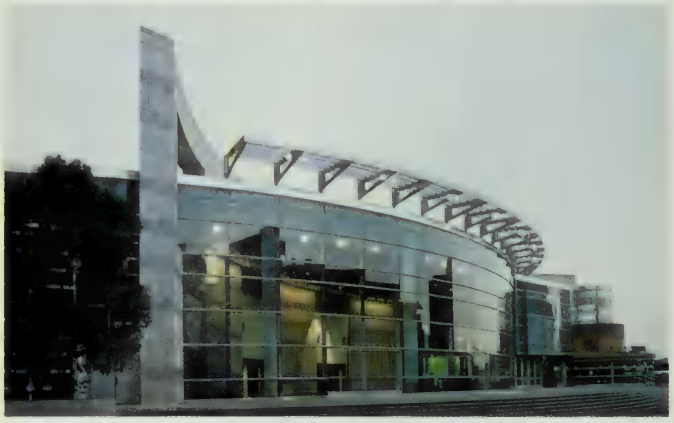


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CIRCLE 27 ON INQUIRY CARD



JAPANESE-AMERICAN MUSEUM ENLIVENS DOWNTOWN LOS ANGELES

A new 85,000-square-foot addition to the Japanese American National Museum (JANM) will open on January 23 in downtown Los Angeles's Little Tokyo district. Designed by architect Guy Obata of HOK, the $22 million building will house galleries, a resource center, a large meeting hall, and a Japanese-American hall of fame. Total gallery space will be increased by 300 percent at the museum, which opened in 1992.

The new structure will also perform several important urban functions. A large paved courtyard connects it to the original facility (a renovated Japanese Buddhist temple) and allows pedestrian access between Little Tokyo and the downtown business district. It acts as a gateway to Frank Gehry's Geffen Temporary Contemporary Museum, completing the area's transformation into a new hub of artistic and cultural activity.

The red sandstone used in the project brings to mind that used by Arata Isozaki in his nearby Museum of Contemporary Art. In addition, the new JANM building's glass and stone facade along First Street provides a strong visual anchor at the gritty urban edge of Little Tokyo.

Because the institution's primary goal is to share the Japanese-American experience through oral histories, it relies extensively on film and video presentations. They are exhibited in conjunction with artwork and artifacts such as a reconstructed house from a World War II Japanese-American internment camp.

The digital interfacing provided by the resource center at the hub of the new building is another key element. One can "visit" the JANM from anywhere in the world and access its collection via the Internet. While viewing the museum's artifacts on a computer screen might not be optimal, for a distant multitude it becomes a lifeline. *Alice Y. Kimm*

PITCHING A NEW TENT ON THE PLAYGROUND OF THE RICH

Aspen, Colorado, may be the nation's glitziest ski resort, but for nearly 50 years it has also hosted the annual Aspen Music Festival, a nine-week summer event that attracts some of the world's best classical musicians.

Many of the concerts are held outdoors under a tent designed by Herbert Bayer, the onetime Bauhaus instructor and longtime Aspen resident. Bayer's amphitheater, built in 1964 to replace a tent designed by Eero Saarinen, is considered an icon in Aspen—but it leaks, and musicians have long complained about its poor acoustics.

As a result, Music Associates of Aspen, which oversees the festival, has turned to local architect Harry Teague, AIA, to design a new amphitheater. Teague was a logical choice—five years ago, his firm designed a much-praised concert hall for the festival.

This time, the stakes are high. "Saarinen and Bayer—those are some pretty awesome footsteps to follow," Teague acknowledges. Also, many people in Aspen have a sentimental attachment to the 1,700-seat Bayer tent; some residents urged for it to be left alone. But in October the city council, which had final say, voted unanimously in favor of a new structure.

Teague's design is not a radical departure from Bayer's. The theater will be nearly the same size but will feature a larger stage and expanded backstage area. The tent itself will be made of Teflon-coated fiberglass supported by a wood and glass "acoustical disk" that will reflect sound and filter daylight. Unlike the Bayer tent, the new one will remain in place year-round. It will cost about $10 million and will open in summer 2000.

"The biggest challenge," Teague says, "is to make a tent that sounds good." To that end, he is consulting with acoustician R. Lawrence Kirkegaard, who is responsible for sound design in a number of concert halls, including Denver's Buell Theatre and Tanglewood's Ozawa Hall. *David Hill*

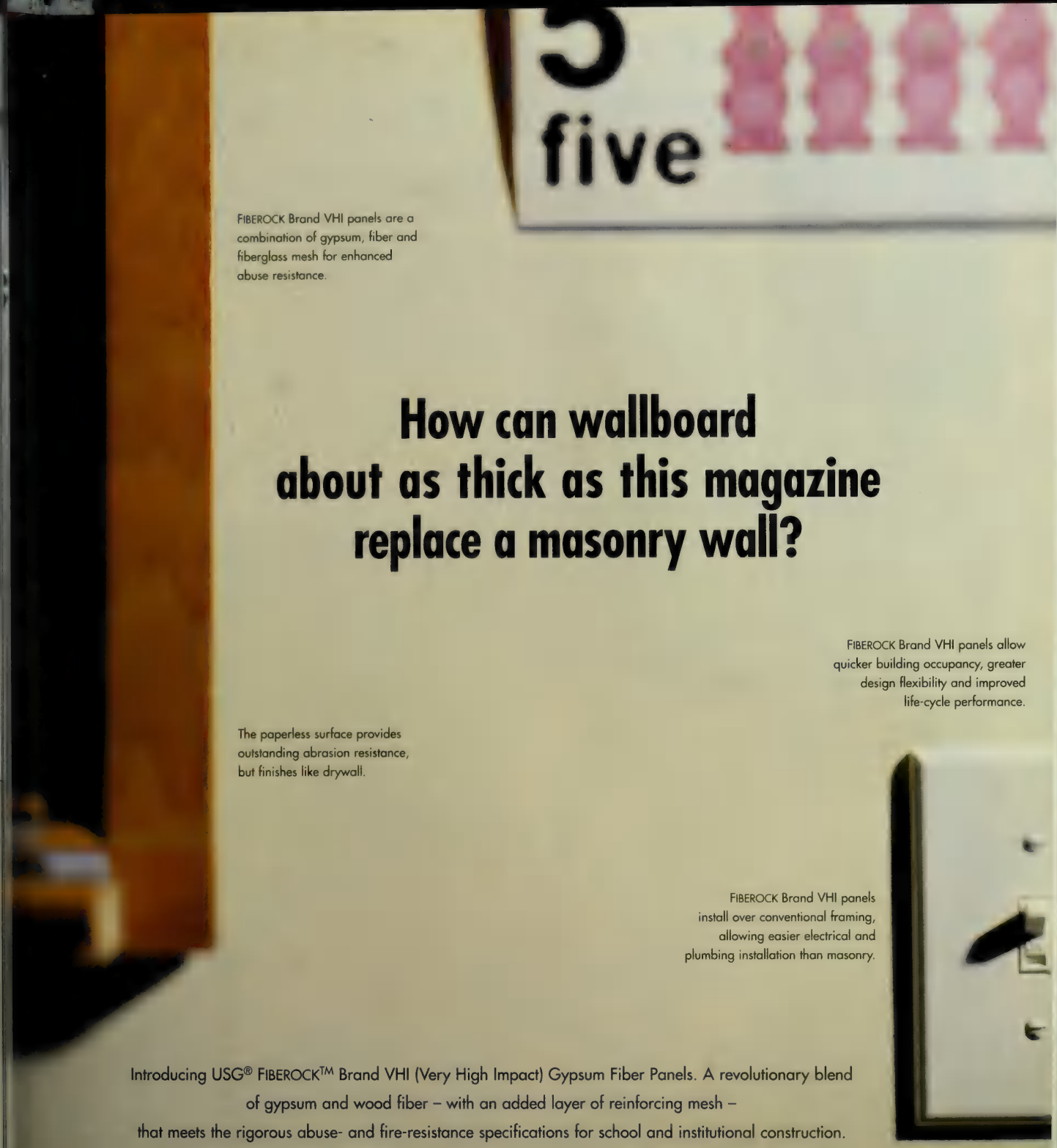
SAN FRANCISCO TO BUILD GAY CULTURE CENTER **Amid continuing reports of anti-gay violence across the nation, plans are proceeding in San Francisco for a project that may offer sanctuary and hope. In November, San Francisco's Planning Commission approved the Lesbian Gay Bisexual Transgender Community Center in the gay neighborhood known as the Castro. The 40,000-square-foot center, designed by the Cee/Pfau Collaborative, is believed to be the first new building in the nation dedicated to the needs of the gay community. City officials and gay community leaders intend the center to be an alternative gathering place and a site of orientation for new arrivals in town. The city has contributed $6 million of the project's $10 million budget.**

The Cee/Pfau Collaborative, a joint venture formed by Peter Pfau, formerly of Holt Hinshaw Pfau Jones, and Jane Cee, an openly gay architect and former HHPJ associate, won the commission with a design that makes a bold statement on Market Street, San Francisco's main commercial thoroughfare, while incorporating a historic building on the corner.



Cee/Pfau used transparency and translucency to explore aspects of sexual identity and gay experience. Pfau points to the double curtain wall on Market Street as "a strong statement of openness" that also blurs physical distinctions between inside and out. The wall accommodates a system of sliding metal mesh screens that doubles as a sunscreen and a way to project graphic iconography onto the building's facade.

When the center opens in 2001, it will take its place among several other signs of the Castro's newfound confidence. At the corner of Castro and Market, the conversion of a landmark bank to the home for the Gay Men's Chorus, a historic street car line, and a huge rainbow flag reaffirm the Castro's place as one of San Francisco's most vibrant cultural and commercial districts. ***Eric C.Y. Fang***



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CIRCLE 28 ON INQUIRY CARD

MAYOR SCHELL, HON. AIA: DESIGN VISIONS FOR A CITY IN FLUX



The new mayor of Seattle, Paul Schell, Hon. AIA, has a closer relationship with the design community than most politicians. As the city's Port Commissioner, he oversaw the development of the waterfront; he was involved in several projects as a private developer; and he has served as dean of the University of Washington's College of Architecture and Urban Planning. As his city continues to expand rapidly (see Correspondent's File, page 37), Schell has a unique opportunity to influence the aesthetics of an urban environment. He discusses philosophy and strategy in the following interview.

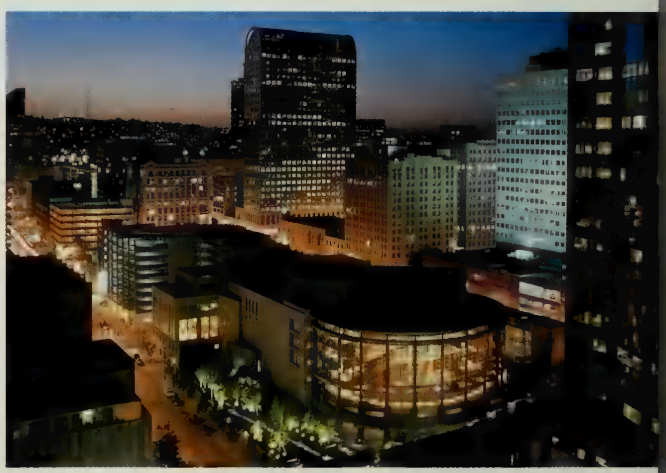
RECORD: Seattle faces the dilemma of finding ways to grow that are acceptable to citizens but without increasing sprawl. How do you plan to make denser development palatable? What role can architects play?
Schell: I like to use the phrase "growing with grace." One way to do this is on a neighborhood-by-neighborhood basis, in incremental steps. I'm against grand strategies. They're rarely successful since they don't account for the serendipity that makes a real city work. My goal is to look at the whole picture and understand that transportation, housing density, quality of life, and neighborhood revitalization are all pieces of a larger puzzle.

We're looking at "great" streets: public transportation corridors with housing along them, often over retail or office space. By replacing strip shopping malls with mixed-use projects, we can introduce densities into a neighborhood without negatively impacting its single-family character.

Architects need to learn to sublimate their own desires to create sculpture and recognize the value of their role as facilitators in creating a sense of community.
RECORD: You've named housing as one of the most critical concerns of the region. Could you describe the area's housing problems and the steps you propose to address it?
Schell: Housing costs are rising faster than incomes, in large part due to the imbalance between supply and demand. To address this issue, we're focusing on ways to quickly increase the housing supply. We've made changes in the building permit process so that 55 percent of applications are processed within 24 hours. The market is there for the private sector to build more housing.

We're also actively identifying parcels where we would like to introduce more housing. We don't let a single project go by without asking if there is a chance to add housing.
RECORD: You've proposed a small-houses-for-small-lots design competition, with winning plans available for free to builders. On a larger scale, would you consider demonstration projects—like Berlin's International Building Exhibition in the 1980s—to explore means for increasing density?
Schell: I have an aversion to megaprojects. They might make for good reading in architecture journals, but they aren't viable solutions for Seattle. What we need is a better understanding of how people live and work. In the past there were lots of reasons for separating work and home, but now the nature of work is changing. The question might more accurately be: "How do we create interesting places to work?" This might mean going back to the old model of the company town. What we really need are illustrations of new ideas for workplaces.
RECORD: You've mentioned that the current zoning and permit process rewards "big box"–style buildings. How do you propose removing the barriers to good design?
Schell: Next year I'm declaring war on process. Seattle seems more content with a good process than with results. This doesn't mean we shouldn't have an open and participatory governmental design process, but how long does it have to go on? Too often we reward those with the staying power to attend meetings. The door will remain open for everyone, but at some point we have to say it's time to get on with it. I expect this will be controversial.
RECORD: You're a proponent of introducing mixed-use components into new civic projects. What constitutes appropriate civic expression?
Schell: In addition to a new central library downtown, Seattle will also be building a new city hall and justice center. I don't think this new civic center should include mixed-use, but there are plans to include a gathering space for political rallies and public discourse. We need to develop a government center that will have the scale, quality, and open space to meet the needs of our citizens. We've gone beyond the frontier notion of being totally focused on the lowest cost and the fastest way to build—which usually turns out not to be the lowest cost in the long term. We're still trying to figure out a Northwest expression for urban architecture—we've done a good job on that with housing—but I think we have a chance to explore this further with these projects.

We'll have an international search for the architects for the new central library, but I'd like to see the new city hall designed by a local firm. The work of international architects in Seattle has been somewhat disappointing—except for Steven Holl, who is in a sense a local guy anyway. Frank Gehry may have something really interesting for us with the Experience Music Project. I love good architecture, but it has to be an expression of our community.



Schell has lauded LMN's design for Benaroya Hall.

The architect has to help accomplish this and not just sell us a piece of art.
RECORD: If you could do anything to maintain the quality of life around Puget Sound, what would it be?
Schell: When we celebrate the millennium I'm going to urge people to recommit to volunteerism, diversity, and harmony with the environment. Seattle's natural setting is what makes it unique. We can set a mark for the country on how to add density while celebrating our natural setting. We need to make sure that the spirit of Seattle remains intact, because once that's gone you can't build it back. *Sheri Olson*


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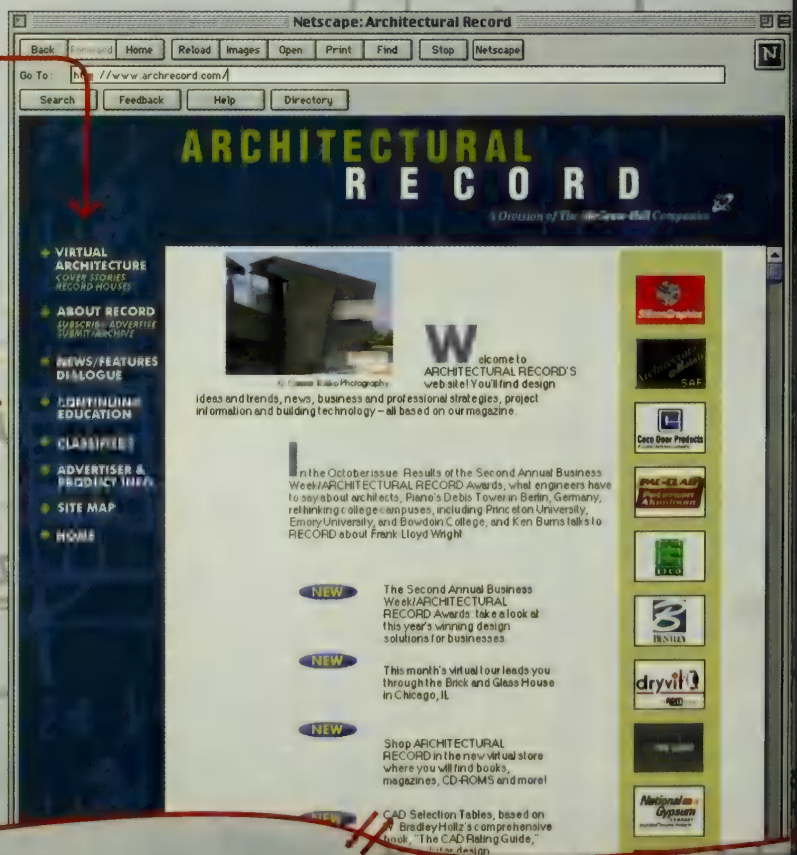
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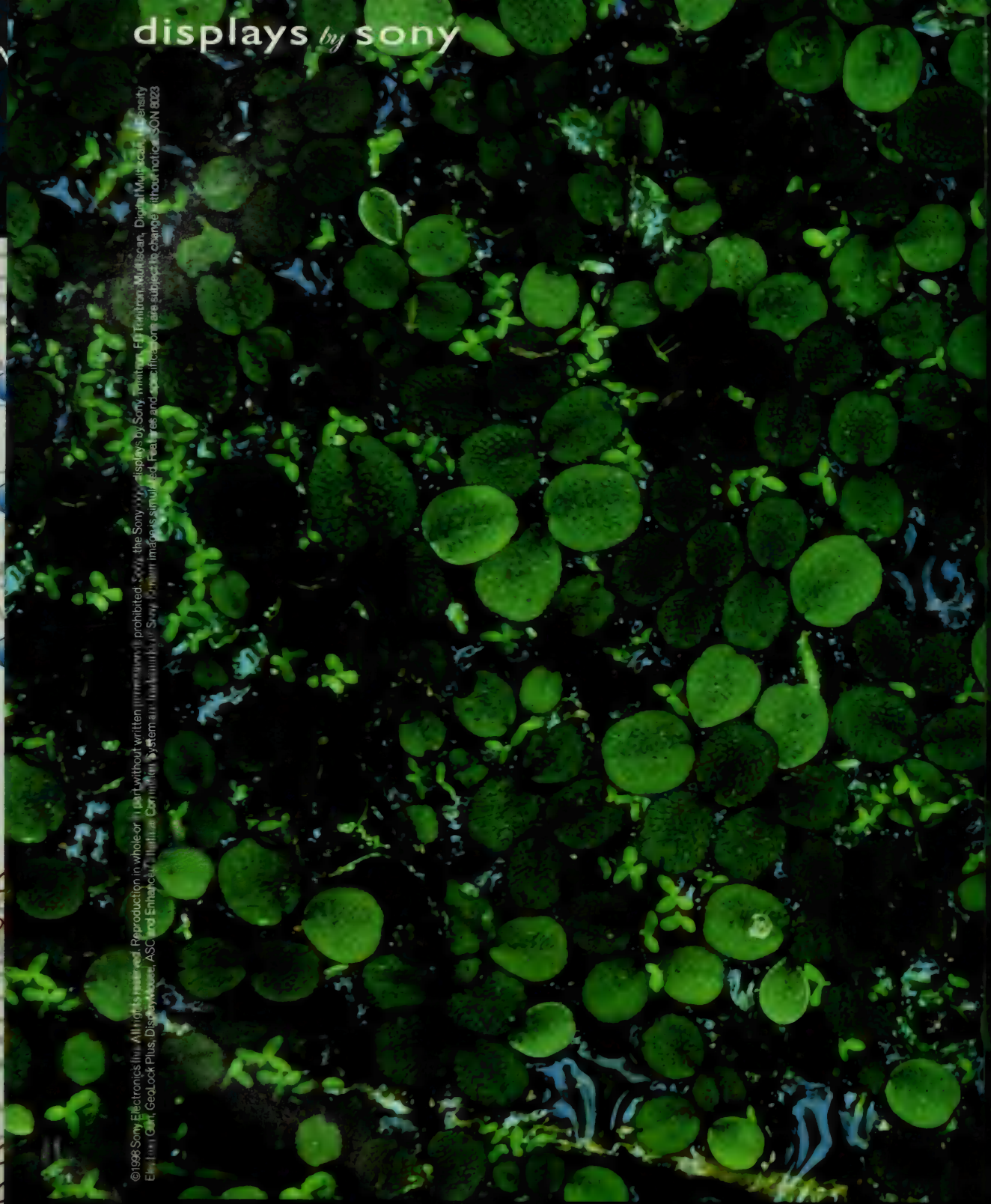
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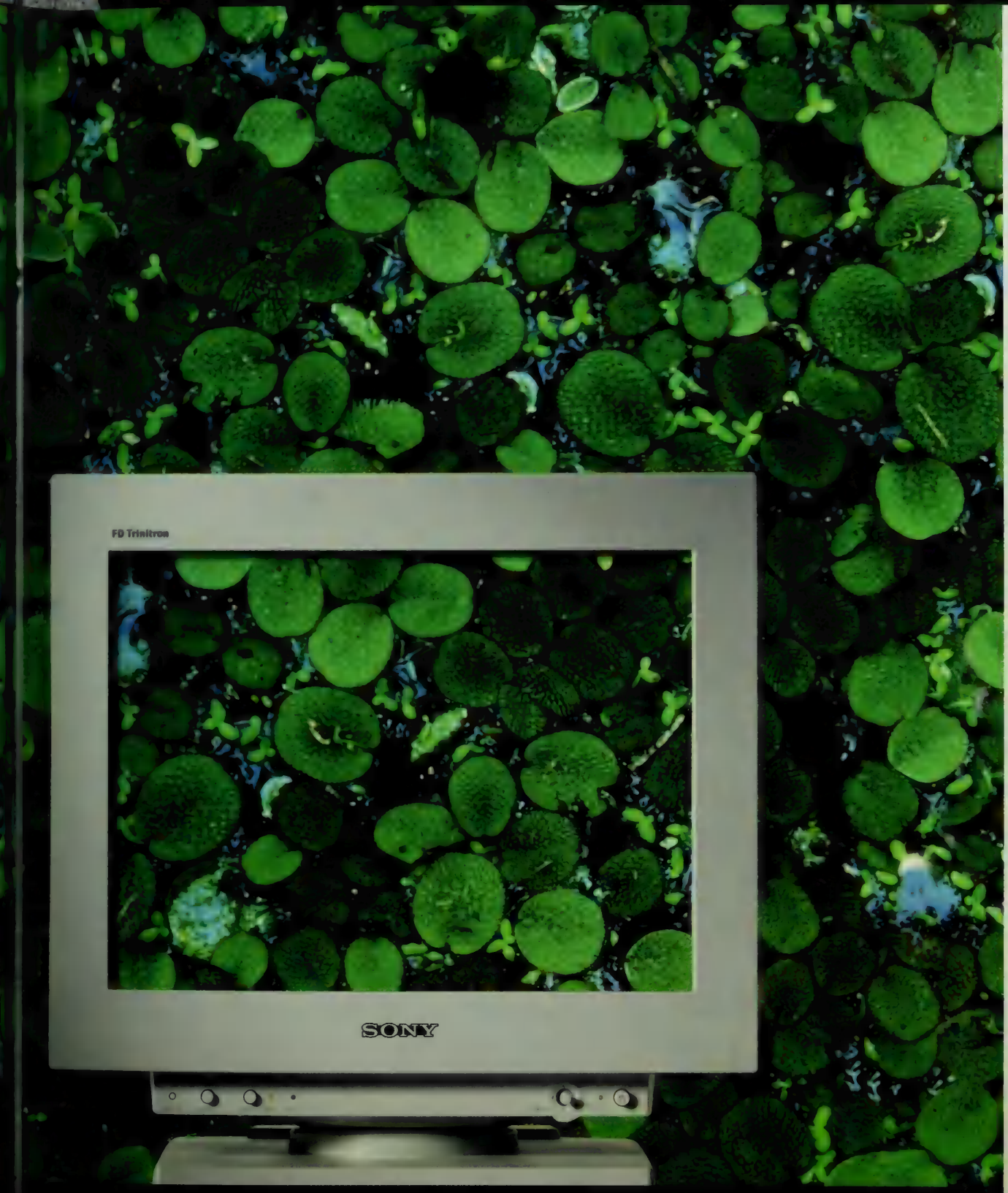
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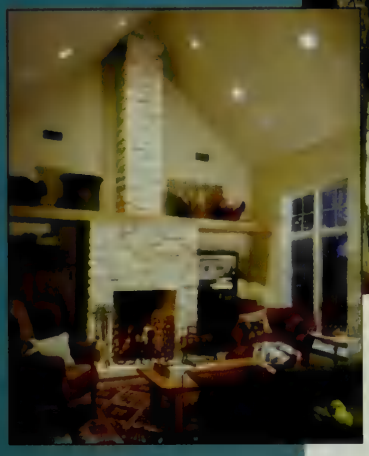
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DATES EVENTS

Calendar

All Wright: The Dana-Thomas House
Chicago
Through January 31
An exhibition showcasing the most complete and best-preserved example of Frank Lloyd Wright's early Prairie houses. Chicago Architecture Foundation. Call 312/922-3432.

Main Street Five-and-Dimes
Miami Beach
Through January 31
Photographs, drawings, and architectural fragments document the architectural history of one of America's foremost chain stores, S. H. Kress. The Wolfsonian, Florida International University. 305/535-2631.

Cities on the Move
New York City
Through February 7
This exhibition brings together artists, architects, filmmakers, and other "creators" who explore the shapes and forms of Asian cities. P.S.1 Contemporary Art Center. 718/784-2084.

Monuments of the Future: Designs by El Lissitzky
Los Angeles
Through February 21
An exhibition of works by the early-20th-century Russian artist, including designs for utopian skyscrapers. Getty Center. 310/440-7300.

The Cartoons of Roger K. Lewis
Washington, D.C.
Through February 28
More than 100 cartoons satirizing the state of architecture and urban design, originally published in the *Washington Post.* National Building Museum. 202/272-2448.

Design Ideas for New York's East River
New York City
Through February 28
On display are entries to the Van Alen Institute's ideas competition to transform the East River into public space, and the New East River Park Project by Reiser + Umemoto Architects. Van Alen Institute. 212/924-7000.

Unlimited by Design
New York City
Through March 21
An exhibition of products, services, and environments designed to meet the needs of people throughout their life spans, from toddlers to the elderly, demonstrating the effect design can have on the quality of life. Cooper-Hewitt National Design Museum. 212/849-8300.

Forgotten Gateway: The Abandoned Buildings of Ellis Island
Washington, D.C.
Through March 28
A photographic exhibition documenting the deterioration of the historic hospital complex on Ellis Island, which was untouched by the renovation that transformed the north side of the island. National Building Museum. 202/272-2448.

The Little Apple: Souvenir Buildings
New York City
Through March 28
On display is a collection of 125 miniature New York buildings, with the oldest souvenir dating from 1800. Museum of the City of New York. 212/534-1672.

Zigzags and Speed Stripes: The Art Deco Style
Pittsburgh
Through March 28
An exhibition surveying the impact of the Art Deco style on architecture and design, tracing the interwar phenomenon from zigzag moderne to streamlined moderne. The exhibition complements the permanent installation of *The Chariot of Aurora,* a gilded and lacquered relief from the SS *Normandie.* Carnegie Museum of Art. 412/622-3131.

Building the Empire State
New York City
Through March 31
A documentary look at the design and construction of Shreve, Lamb & Harmon's 1931 Empire State Building. Skyscraper Museum. 212/968-1961.

Architecture on the Rise: Renderings by Hughson Hawley
New York City
Through April 4
Watercolor drawings from 1880 to 1931 by a master renderer who offered a vision of the developing city. Museum of the City of New York. 212/534-1672.

Photography and Transformations: Venezia–Marghera
Montreal
Through April 25
The work of 15 Italian photographers who explore the relationship between historic Venice and the modern, industrialized, and polluted mainland port of Marghera nearby. Canadian Centre for Architecture. 514/939-7000.

Marion Mahony and Walter Burley Griffin
Sydney, Australia
Through May 2
This exhibition explores the professional and spiritual journey of architects Mahony and Griffin, from their years in Frank Lloyd Wright's office at the turn of the century through their work in Australia and India in the 1920s and 1930s. Powerhouse Museum. 011/61/2/217-0111.

International Builders' Show
Dallas
January 15–18
The world's largest convention and exposition geared to the home-building and construction industry will also include, for the first time, the International Commercial Construction Exposition. Dallas Convention Center. Call Jason Lowe at 202/861-2104 or E-mail jlowe@nahb.com for details.

Transformations: Mixed-Media Assemblages by Keith Krueger
Washington, D.C.
January 15–February 26
An exhibition of works by a local architect who uses discarded elements from buildings and construction sites in his compositions. AIA Headquarters Gallery. 202/638-3221.

World of Concrete USA
Las Vegas
January 18–22
An exposition focusing on materials, equipment, and technology for the concrete construction, repair, and refurbishment industries. Las Vegas Convention Center. For more information call Maria Prior at 630/705-2578 or visit www.wocexpos.com.

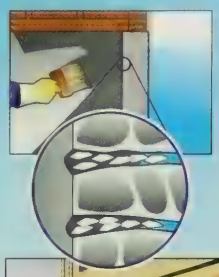
Solid Surface '99
Las Vegas
January 21–23
The International Solid Surface Fabricators Association's annual event will attract more than 100 exhibitors and 5,000 attendees. Riviera Hotel. Call 702/567-8150 for more information.

Restoration & Renovation
Washington, D.C.
January 28–30
This year's International Exhibition and Conference for Traditional Buildings, Homes, Design and Craft will be held in the nation's capital to encourage networking with the public sector. Sheraton Washington Hotel. Call 978/664-6455 or visit www.egiexhib.com for more information.

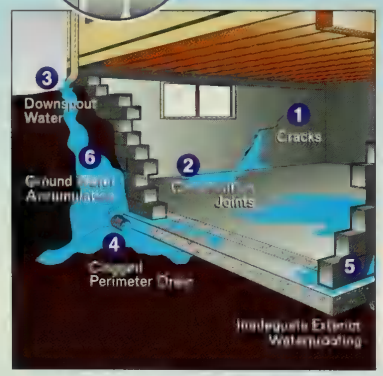
Community Built Association Conference
Santa Barbara, Calif.
January 29–February 1
A conference run by an organization devoted to involving local residents in the building process. Attendees will include artists, architects, landscape architects, designers, builders, community gardeners, park and recreation officials, and community development specialists. La Casa de Maria. For more

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National Roofing Contractors Association Convention
Phoenix
February 7–10
The NRCA hosts the largest roofing convention in the United States, attracting more than 8,000 attendees and 390 exhibitors. Phoenix Civic Plaza. For registration materials, call 800/323-9545 or visit www.roofonline.org. For fax-on-demand, call 888/455-6722 and request document 1203.

Greenprints '99: Sustainable Communities by Design
Decatur, Ga.
February 22–23
A conference and trade show on environmentally appropriate building technology and sustainable community design, hosted by Southface Energy Institute and the Georgia Environmental Facilities Authority. Atlanta-Decatur Hotel and Conference Plaza. Call the Morningstar Management Group at 404/653-0606 for more information, or visit www.southface.org.

Inter Con '99
Orlando
February 24–28
A convention and trade show for the commercial interiors construction industry, sponsored by the Ceilings and Interior Systems Construction Association and *Interior Construction* magazine. Walt Disney World Coronado Springs Resort. For information, call 630/584-1919 or visit www.CISCA.org

Coverings '99
Orlando
March 23–26
The largest trade show in the western hemisphere devoted to ceramic tile and stone products for walls and floors. Orange County Convention Center. For more information, call 800/881-9400, E-mail info@coverings.com, or visit www.coverings.com.

American Institute of Architects National Convention
Dallas
May 6–9
The theme of this year's AIA convention, expected to draw as many as 14,000 people, is "Think Big, Make It Happen: Leadership in the New Millennium." Architects can earn all 36 Learning Units needed for AIA accreditation by attending seminars and exhibitor education sessions. Dallas Convention Center. For information, visit the convention Web site at www.aiaexpo.com (not yet online). For information on exhibiting, contact Hill, Holliday Exhibition Services at 617/572-3553.

Competitions

London AIA Excellence in Design Awards
Submission deadline: January 15
The awards program honors excellence in architectural design for work completed between January 1, 1993, and December 31, 1998. Eligible are projects by U.K.-based architects working anywhere in the world; projects in the U.K. by architects from anywhere in the world; and projects in the U.K by U.K.-based students. For more information, write AIA, Kent House, 14–17 Market Place, London W1N 7AJ, or fax 011/44/171/636-1987.

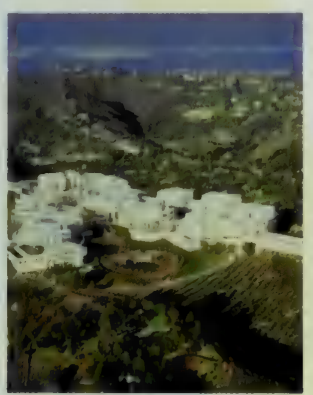
James Beard Foundation/Interior Design Magazine Awards
Submission deadline: January 29
Established in 1995 to honor excellence in interior and graphic design for restaurants, these awards are given for projects in the United States and Canada. For more information, write the James Beard Foundation, 6 West 18th Street, 10th floor, New York, N.Y. 10011 or visit www.jamesbeard.org.

Assopiastrelle Design Award
Submission deadline: January 30
Sponsored by the Association of Italian Ceramic Tile Manufacturers, this award honors American designers or architects who have created interesting and innovative settings using Italian ceramic tiles. Tile dealers may submit projects on behalf of their clients. For further information, contact Christine Abbate at 718/783-3160 or fax 718/398-2591.

Library for the Information Age
Submission deadline: January 31
The first international Web-based architectural design competition, sponsored by the Association for Computer-Aided Design in Architecture (ACADIA), calls for the design of a library that takes full advantage of information technology while still serving the library's roles in culture and society. Proposals may incorporate spatial simulations and/or physical solutions. Open to both student and professional designers worldwide. Visit www.acadia.org/competition/ for more information.

(continued on page 178)

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CIRCLE 38 ON INQUIRY CARD

LISTENING TO: Critics

THE STAGE IS SET

by Andrea Oppenheimer Dean ***Illustration by Michael Sorkin Studio***

Beginning next month, ARCHITECTURAL RECORD *will add a wide-ranging critical column to its editorial mix. The column will offer ideas, insights, and opinions from influential and controversial thinkers in a variety of disciplines. As a springboard for the column,* ARCHITECTURAL RECORD *recently invited five architecture critics to its New York offices to exchange ideas. The panelists discussed the role of criticism, star-making, partisanship, the prevailing emphasis on form rather than social and environmental issues, and the ultimate impact of their profession. The discussion was moderated by Andrea Oppenheimer Dean, who will serve as editor of the monthly column.*

Although all five critics who participated in RECORD*'s roundtable are based in New York, they represent different tendencies in criticism, shaped, in part, by the expectations of the publications where their work appears. Writing for newspapers or general circulation magazines, whose editors and readers tend to have only a marginal interest in architecture, is different from writing for an architecture magazine that addresses an audience already convinced of design's significance.*

Paul Goldberger, a staff writer and architecture critic at the New Yorker *and from 1973 to 1997 an architecture critic for the* New York Times, *has written almost exclusively for lay readerships, albeit sophisticated ones. Michael Sorkin wrote for an informed general audience as architecture critic for the* Village Voice *(1981–91), and now is a contributing editor of this magazine and of* Metropolis. *He heads his own New York design practice, and has taught at a number of schools of architecture. Jayne Merkel was the architecture critic for the* Cincinnati Inquirer *(1977–88) and now edits* Oculus, *the monthly publication of the AIA New York Chapter. She is also a former director of the graduate program in architecture and design criticism at the Parsons School of Design. Suzanne Stephens is a special correspondent for* ARCHITECTURAL RECORD *and is completing her doctoral dissertation on American architectural criticism at Cornell University. She was a longtime staffer at* Progressive Architecture *and has extensive experience writing for general interest magazines. Cynthia Davidson, a former editor of Chicago-based* Inland Architect *(1982–90), launched and became editor in 1993 of the theory-oriented bimonthly* ANY *(Architecture New York) as well as the books that have grown out of the magazine's annual conferences (*Anyone, Anyway, Anybody, Anyhow, *etc.).*

What is criticism's role? Why should architects bother reading it? "To read what they usually know but often don't want to admit to themselves," said Suzanne Stephens. "You rarely tell them anything they don't know deep down. In many ways you're just bringing out invisible or hidden insights." In other words, criticism enables a clearer understanding of designs whose strengths and shortcomings architects and those interested in their work may otherwise only intuit or comprehend incompletely.

Criticism's most important role, the panelists agreed, is in placing architecture and urban design into a larger intellectual, social, and cultural context. "If we don't do that," Paul Goldberger insisted, "we're just comparing shapes." Cynthia Davidson said, "you want to wake people up," not only to individual building projects but also to ingrained ways of thinking about larger issues. "You want to prevent them from reacting in an automatic knee-jerk fashion."

Michael Sorkin, while expressing skepticism about criticism's ability to effect change, insisted that architecture can't do without it. "If we accept that there's some notion of progress abroad in the world, then the only way to guarantee it is through vigorous criticism," he said. A belief in the power of criticism, according to Sorkin, underlay Robert Venturi's reexamination of vernacular architecture in the 1950s and 1960s, a time when Modernism's rejection of all traditional forms was unquestionably accepted. The critics of Postmodernism, he argued, then resurrected Modernism, stripped it of its antiurbanism, and transformed it into city-sensitive neo-Modernist architecture.

The bigger picture

According to Sorkin, the way architecture comes into being is misrepresented unless critics recognize (and communicate) "delimiting circumstances in culture, which have to do with technology, with social relations, with the economy, and other conditions that undergird architectural expression." Davidson interpreted Sorkin's statement as being about criticism's role as a harbinger of the future of architectural practice, and responded that the professional press already devotes too many pages to the business of architecture and the changes (economic, social, technological) affecting it. Jayne Merkel agreed, pointing out that architects are

interested in practice-oriented issues but *passionate* only about design. She said practice workshops, usually organized by the AIA, draw a respectable dozen or so people, but "if Zaha Hadid comes to town, 800 people crush into a little auditorium."

The star system

With that, the discussion shifted from criticism's role in illuminating larger developments to the much-reviled star culture in architecture. If we hate it so much, why doesn't it disappear? Does criticism promote it? Does criticism create stars? Should it?

For publications geared toward a general audience, explained Stephens, "if there isn't a celebrity to hang a story on, they're not interested. Editors don't think people want to read about inanimate objects, per se. The problem is, they're right." When you are writing for the architectural press you have a captive audience, she said, but at such magazines as *Vanity Fair*, to which Stephens was a contributor in the early '80s, "the editor has to be sold on how important and interesting architecture is; they want 'Prominent Rakish Architect Murdered by Socialite in Madison Square Garden.'"

Architecture needs its celebrities, its heroes, argued Davidson. "Star power—which is not particular to architecture, it's our culture—makes the profession look like it has dynamic leaders. Every profession needs its Steven Spielbergs to make it seem lively and dynamic, whether it is or not. We've always had them in architecture. We had Corb, Sullivan, Burnham, Frank Lloyd Wright."

But the ability of criticism to create stars is vastly exaggerated, the panelists agreed. Stephens proffered that stars come into being by a process she described as "the rubbing molecules syndrome," in which "you get a bunch of people who are teaching and talking to each other and writing for magazines, and ideas percolate, bubble up." Younger designers, she added, have become increasingly adept at attracting media attention.

For better or worse, the media and critics continue to be seduced by eye-popping images; architectural criticism is perennially chided for placing too much emphasis on form and fashion. But, noted Sorkin, "You've got to do it. That's what's nice; that's what's interesting. That's what makes the architecture great." Memorable form is also what will identify a period of architectural history, and it's what readers of architectural magazines seem to want. As evidence, Stephens cited surveys conducted while she was at *Progressive Architecture* that showed readers bypassing articles about socially significant but visually bland buildings. "The problem with social architecture is that



Panel members, left to right, in the firing squad of Goya's *The Third of May 1808*: Paul Goldberger, Cynthia Davidson, Michael Sorkin, Suzanne Stephens, Andrea Oppenheimer Dean, and Jayne Merkel. They are firing on Peter Eisenman, Philip Johnson, Rem Koolhaas, Frank Gehry, Le Corbusier, and Zaha Hadid.



much of it just isn't visually arresting," she concluded.

A related issue: Shouldn't architectural journalism—and criticism—devote more ink to ordinary buildings and settlement patterns that are ruining the landscape? Goldberger said he's trying to do more of that in his stories for the *New Yorker.* He also contended that while he lamented cultural homogenization, shopping mall and commercial-strip developments have improved living standards for many Americans. The small towns we remember so affectionately just couldn't provide the variety or affordable prices of today's suburban strips, he said.

So, why haven't architectural standards risen along with living standards? Why have they in fact plummeted, and with them the amount of space newspapers and magazines devote to criticism? (For a larger discussion of this issue, see Suzanne Stephens's article, "Assessing the State of Architectural Criticism in Today's Press," in the March 1998 RECORD.) The obvious answer, according to the panelists, is that Americans don't much care about architecture. They perceive it merely as a product, a form of shelter, or an indication of status, rather than as art or an expression of culture. Which is why, Goldberger observed, this era has failed to produce an estimable vernacular style.

The critical stance

Our five panelists vary widely in their interests, inclinations, and self-defined missions. At one end of the spectrum is the theory-oriented academic critic, who writes mainly for such specialized journals as Davidson's *ANY*; at the other is the critic as newspaper journalist, as Merkel was during the 1980s. But Michael Sorkin noted that there's another significant phenomenon not represented by the panel. Martha Stewart, he observed, offers a form of critical writing, the lowest form admittedly; but she does it very after her fashion. The vision is nauseating, but nevertheless interesting and consistent. It's undergirded by a whole set of social arrangements; it's quite comprehensive in its way."

The diversity of perspective raised the question of partisanship. Should the critic be an advocate? Opinions differed. Of the five panelists, the one who defined himself most clearly as partisan was Sorkin. Partisanship, he insisted, "comes with the territory." He sees himself as a protagonist acting for the environment and for "a criticism that frames an alternative, that encourages the work of alternative practices." In her present role at *ANY*, Davidson has positioned herself as an advocate for a small group of avant-garde designers. "But I don't think it's about partisanship," she said, "as much as letting people know what you're interested in. I'm more interested in aesthetics."

The other three critics all described their roles as surmounting partisanship, though in different ways. Merkel, who views herself as primarily a journalist, says she is "a partisan for objectivity." "If you believe in architecture and that public spaces make a difference, you can't help but be a partisan, but very few issues are black and white," she said. Goldberger, similarly, believes that "critics need a certain degree of catholicity" but maintained that they should "still represent a definable set of values and principles." While taking a strong stand against cultural homogenization, he recognized that critics who appear to be pushing narrow agendas will eventually offend or bore their readers. But those who "come across as being all over the lot confuse readers and appear to stand for nothing," he added.

Elaborating on this theme, Stephens emphasized the importance of being honest and taking unambiguous stands. She admired Ada Louise Huxtable, who now writes for the *Wall Street Journal,* "for being clear-cut in every position she takes, even about being ambivalent. She has certain things she advocates, such as preservation and Modernism, but when you read something by her you don't know what she is going to come out with." For herself as a critic, Stephens said partisanship consists in being "pro-criticism, remaining open, not embracing something just because it's new or rejecting something because I haven't seen it before." Equally important for her, she said, is being fair.

That raised the issue of the critic's relationships to architects. Davidson said she thought little could be gained "by distancing yourself from the maker of a design," while Goldberger questioned whether "one can maintain a critical distance while having any kind of relationship with an architect." "There's the risk," he said, "that one becomes a little too protective of the architect's point of view." Stephens added that knowing a designer can make you understand his or her work better, though one has to be ready to recognize how that relationship can affect criticism.

Sorkin faulted architecture magazines for having "lost that critical sense," initiating a discussion about the magazines' reluctance to criticize for fear architects will deny future access to their work. Sorkin dismissed that position: "If you can create a magazine that everyone is reading, I wonder." Architects, of course, want favorable reviews to send to prospective clients, a problem, said Stephens, that *Progressive Architecture* sometimes solved by running a reported (i.e., fact-driven) article followed by an independent critique.

"STAR POWER IS NOT PARTICULAR TO ARCHITECTURE. EVERY PROFESSION NEEDS ITS STEVEN SPIELBERGS TO MAKE IT SEEM LIVELY AND DYNAMIC, WHETHER IT IS OR NOT." —CYNTHIA DAVIDSON

Elitism and relativism: the critic's pitfalls?

The panel identified green building technologies and the digital information revolution as occupying the center of current critical discourse. Sorkin said that critics tend to be infatuated in particular with architects who are able to use the computer as an "almost purely artistic medium."



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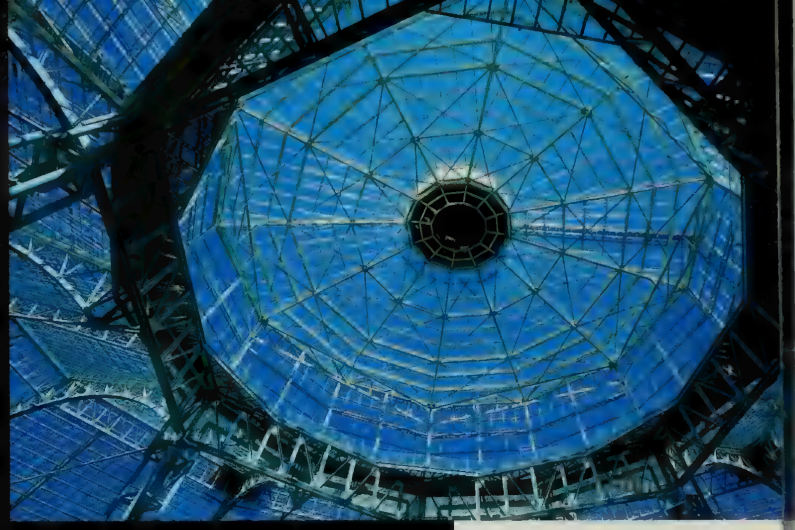
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He regrets that "there's so much formal radicalism around and so little social radicalism; that disquiets a '60s guy like me." He also laments that many buildings regarded as radical speak only to cognoscenti and not at all to passersby. Part of the problem, he said—and it is not a new one—is the arcane language of all elites, not just architects.

Particular to many of today's so-called elites, especially those in academia, is an acceptance of a multiculturalism that questions the validity of any standard of evaluation on grounds that all are culture-bound and elitist. Sorkin related this to a healthy "interrogation of received structures of argument and quality to a larger agenda of loosening architecture from a series of familiar restraints. That's part of the process of refreshing criticism, the questioning of motives and criteria."

Stephens, suspicious of both relativism that validates all work and absolutism that lacks flexibility, said, "There's some place in between that we have to be. It requires constantly questioning and interrogating our assumptions and criteria." Sorkin contended that there is, in fact, a series of tests that can be applied to architecture, especially urban architecture, to measure its real-world impact. "We're still mired in the notion that our job is to test the product against a set of intentions," he said. "I'm much more interested in effects and results." In the end the panelists agreed that if one restaurant can be judged as excellent and better than others, the same should be true of a building, as based on a complex and subtle combination of factors, the most important of which is evidence of creative talent.

"CAN ONE MAINTAIN A CRITICAL DISTANCE WHILE HAVING ANY KIND OF RELATIONSHIP WITH AN ARCHITECT? THERE'S THE RISK THAT ONE BECOMES TOO PROTECTIVE OF THE ARCHITECT'S POINT OF VIEW." —PAUL GOLDBERGER

Impact

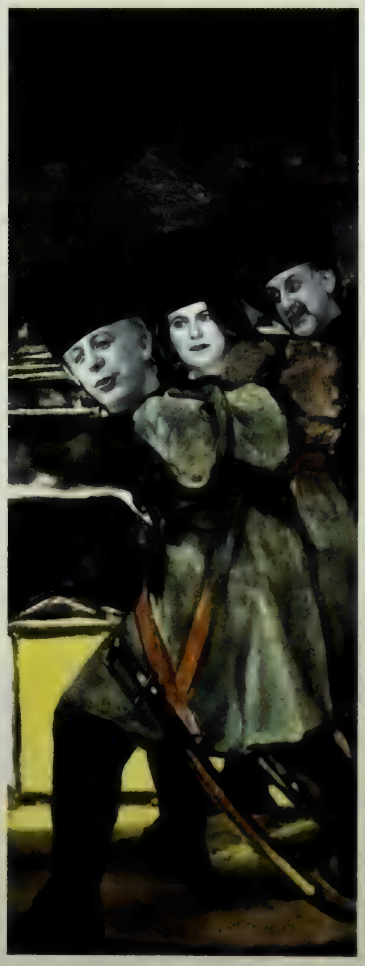
Do critics make a difference? What can be learned, for example, from the legacies of legendary critics Jane Jacobs and the late Lewis Mumford? Merkel pointed out that because Jacobs based her conclusions on common sense and intuition, she developed a viewpoint that contradicted "all the things better-educated people said and thought." What made Jacobs's ideas so credible, Merkel said, was that they resonated with the life experiences of ordinary people. Goldberger reminded his colleagues that Jacobs's writings and then her "act of stepping out from behind her typewriter to intervene in the construction of the Lower Manhattan Expressway constituted an extraordinary radical act."

Although the impact of her writings on American planning was for a long time unambiguously positive, Goldberger added, "like the work of most original thinkers, Jacobs's [body of thought] allowed itself to be codified into a formula, and we suddenly became suspicious of anything new and different and big." Sorkin, while praising Jacobs's influence on urban ideas and policies and her creation of "a kind of oppositional culture," observed that her belief in grassroots and incremental development has "robbed us of the extravagance of experiment, has imprisoned us in a culture of diminished expectations."

Mumford's influence, less tangible perhaps than Jacobs's, was in creating "a moral foundation for architectural criticism that underlies what we have all been saying about the essential mission of connecting architecture to a social and cultural context," said Goldberger. He noted that only Mumford, for example, recognized Wallace Harrison's United Nations Secretariat building of 1949 as an icon of its time for symbolizing the triumph of bureaucracy. The panelists expressed ambivalence about Mumford, finding him utterly admirable, often utterly wrong, but always dazzlingly articulate. "He was so clear, and often eloquent. So what if he was often wrong?" said Goldberger.

A third presence hovered over the discussion, one to which the panelists continually returned: Frank Gehry's Guggenheim Museum in Bilbao, Spain. They agreed that no other recent building has been so unequivocally championed by both the public and the profession. It has become a tourist magnet even for people usually uninterested in architecture, has worked wonders for the city's image and economy, and has pried designers loose from the ingrained notion that a building must reflect its surroundings in an obvious way. As Goldberger pointed out, "Bilbao carries contextualism to a new and much less literal level." Yet critical discourse about Gehry's building was, for all intents and purposes, nonexistent, though media of all descriptions embraced the building's waving shiny shapes. Goldberger concluded that, "as in all fields, a great work in architecture has this way of bursting through. It can neither be created by nor restrained by critical rhetoric."

One could also argue that the Guggenheim building itself served as an act of criticism that altered expectations, "nudged people's views," in Merkel's words. It is eloquent, engaging, straightforward, forward-looking, and forceful—qualities shared, the panel agreed, by the best architectural criticism.



Writing well, the panelists agreed, is the first necessity for critics. "Too many of us become too fast and efficient and stop asking why and learning more," Stephens said. "That's death. The main thing is to continually question your own assumptions." Davidson added that what's missing in contemporary criticism is "great writing" free of the insular language of architecture. "Criticism," she said, "shouldn't just be instructional; it should be entertaining. It should be engaging, have a point of view."

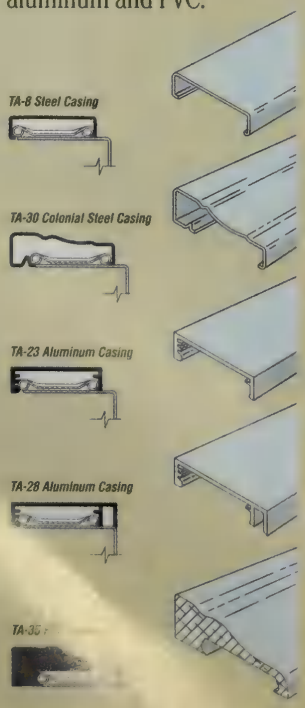
That's exactly what ARCHITECTURAL RECORD hopes to provide in its upcoming monthly criticism column. There is also the hope that calling attention to inspired new creations and to new social, cultural, and economic conditions will leaven the architect's creative process. ■

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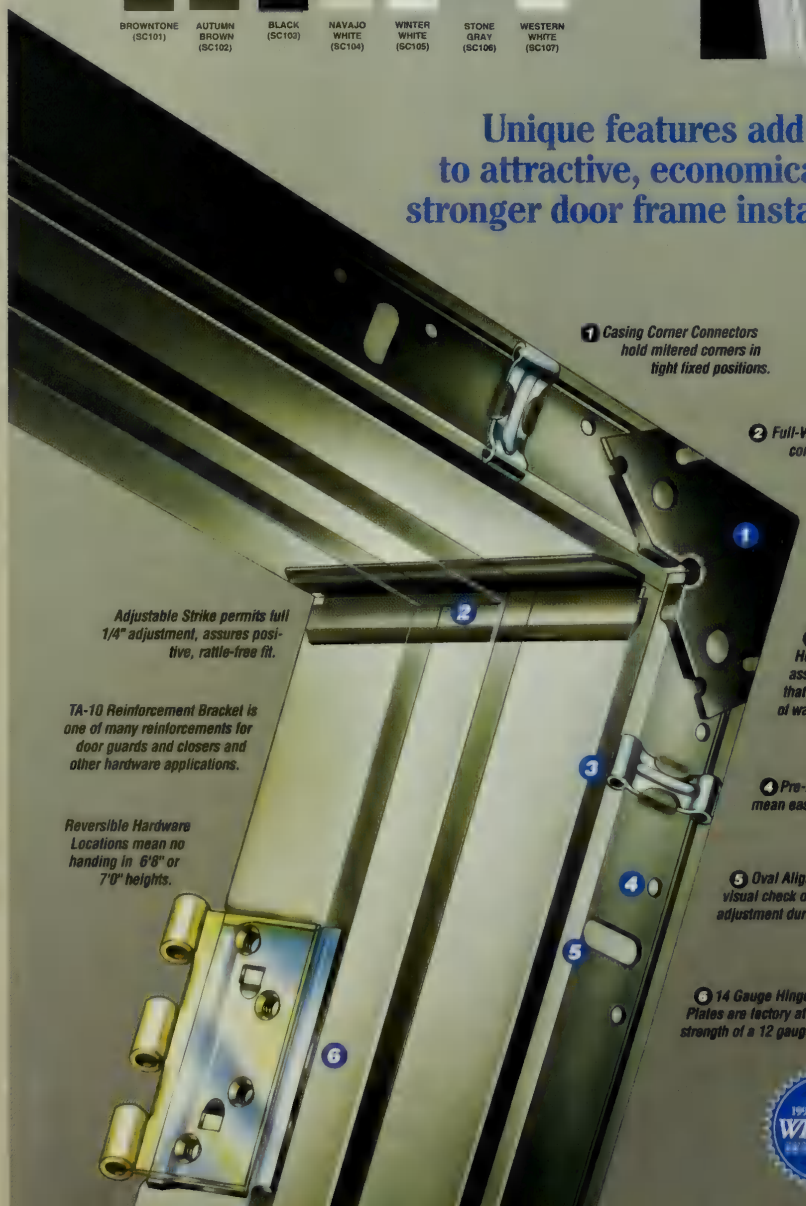
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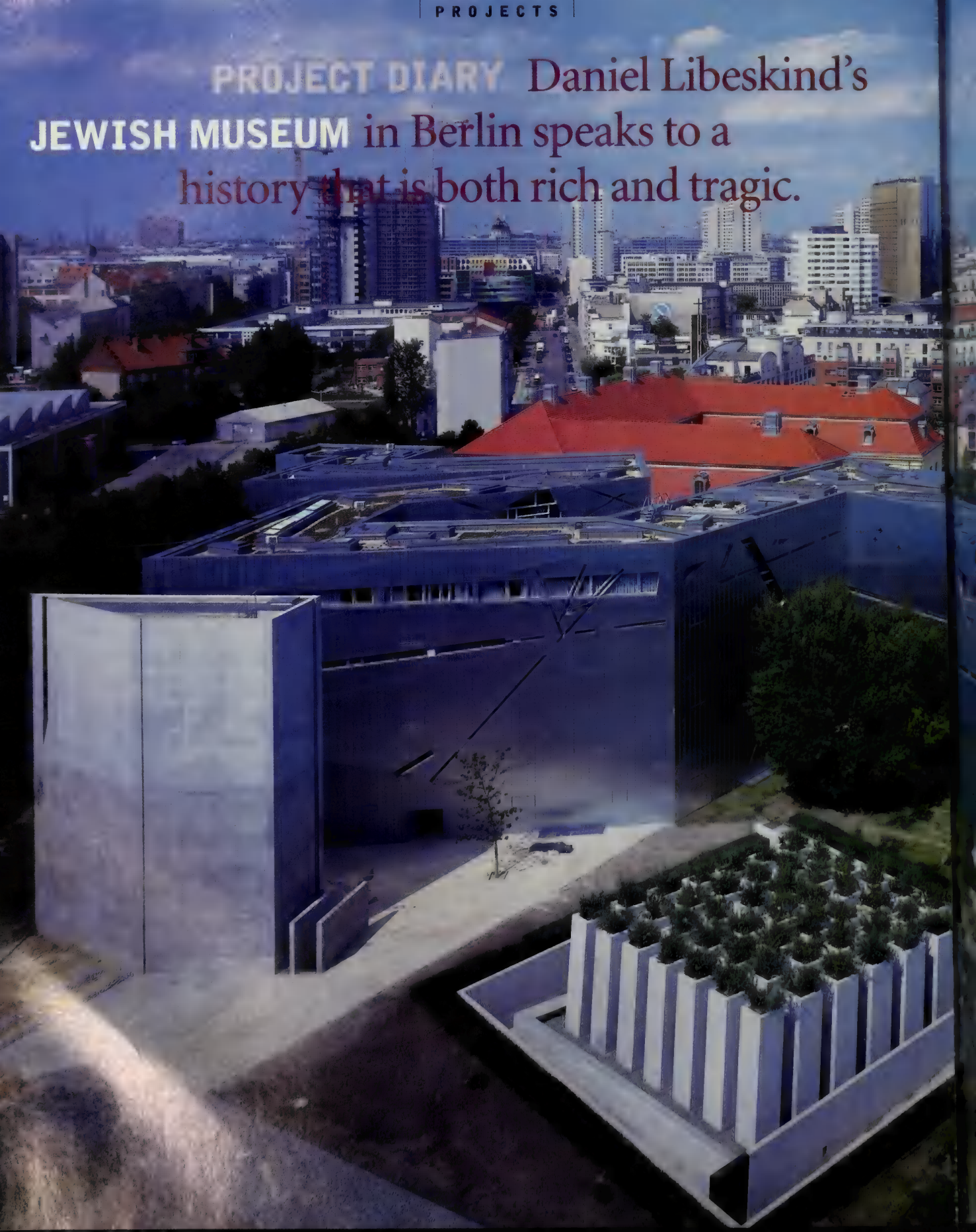
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CIRCLE 42 ON INQUIRY CARD

PROJECT DIARY

JEWISH MUSEUM Daniel Libeskind's in Berlin speaks to a history that is both rich and tragic.



The Jewish Museum is an architectural dagger plunged into the heart of complacency. Critics have argued that this passionate and complex design is impossible from a curatorial perspective. But even empty—the building opens this month without displays—the museum asks a profound question: Can architecture and art help us come to terms with the enormous accomplishments and unfathomable evil experienced by a culture? After 10 years of controversy, visitors will offer their own answers.



Underground passages link Libeskind's metal-clad addition with the red-roofed original, the concrete-framed Holocaust Tower, and the canted, concrete "forest" of the E.T.A. Hoffmann garden.

by James S. Russell, AIA

1988 A competition is announced for a new wing to the Berlin Museum. On its face the addition seems much like any other. It will accommodate growth in such departments as theater, fashion, and toys. But there is a more compelling aspect to the project: realizing a long-held dream, it will create a distinct and united Jewish Department.

Once numerous, prominent, and successful in Berlin, Jews had succeeded in creating a museum to celebrate their contributions to the city in 1933, just as Adolf Hitler consolidated his power. It closed in 1938. Though almost all Berlin's Jews either fled or were sent to death camps in the Holocaust, discussion of a new Jewish Museum went on for decades after World War II. The nonexistent museum's collection swelled with acquisitions and donations. In West Berlin, the idea of a Jewish Department was incorporated into the city museum of Berlin, and a number of sites for displaying the collection were considered. By the 1980s, the Jewish Department comprised two rooms in two locations.

The competition site is on Lindenstrasse at the southern end of the historic heart of Berlin. It's an area of the city somewhat isolated by wobbles in the path of the Berlin Wall. The Berlin Museum, founded only in 1962—the earlier collections remain in the Märkisches Museum, in the East—is housed in the Collegienhaus, a reconstructed 1735 Baroque palace. The program for the addition recognizes that the treatment of Jews requires resolution within the larger goals of the museum. The curatorial program for the Jewish Department proposes organizing the displays under the categories Religion, Community, Jews in Society 1750–1870, and Jews in Society 1870–1945. Anti-Semitism and Hitler's Final Solution are to be dealt with in the History Department.

1989 The jury, a group of prominent architects and special assessors, begins deliberating in May, completing their work on June 23. "The obvious thing may have been to build a normal museum," comments the jury, "had not one entry put forward a quite extraordinary, completely autonomous solution." This is Daniel Libeskind's submission, which is granted first prize. The jury calls the entry "a profound response" to the competition requirements.

Libeskind's triumph is all the more impressive because the jurors initially found the scheme "impossible to interpret." Libeskind did not feel constrained by the surroundings, for example. Though a few historic structures survived wartime bombing, slab-sided buildings—the fruits of various postwar planning fads—litter the surrounding blocks, which had been originally laid out on Baroque principles.

What drove Libeskind's solution was the intertwined history of Jews, many of whom were significant historical figures, and Berlin. Although physical traces of this history, such as synagogues, are all but gone, Libeskind explored the history of important Berliners, both Jewish and non-Jewish. He looked up their addresses, plotted them on a city map, and traced lines among them, making what he called "an irrational matrix" in the form of a system of squared triangles, yielding distorted versions of the Star of David that Jews were forced to wear during the Nazi era.

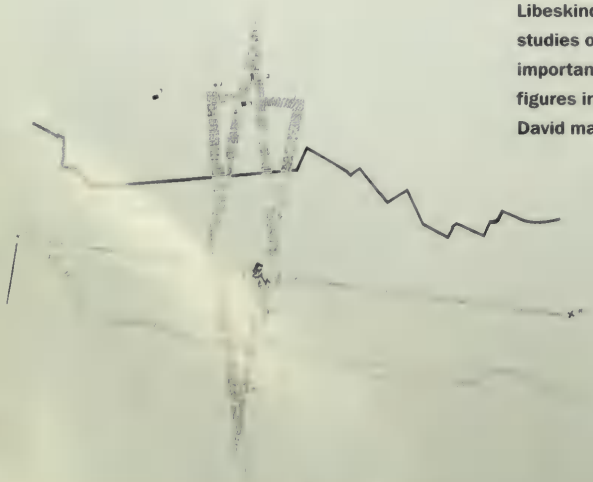
Libeskind was also inspired by the composer Arnold Schoenberg, a key figure in modern music, who attempted but failed to complete his only opera, *Moses and Aaron*, as Hitler rose to power. After the spectacular musical edifice of the first two acts, the third act is recited, and is only minutes long. Libeskind was drawn to this monumental absence, the power inherent in uncompletion. He also stirred into his mix inspiration derived from art and literary critic Walter Benjamin's essay "One Way Street," which Libeskind calls an "apocalyptic guidebook."

The sense that the tragic history of Berlin's Jews was too large for art was amplified when Libeskind discovered the voluminous records of the deported. The government sent him two large volumes, which contain Berlin's Jews' names, dates of birth, dates of deportation, and places—not the places where these people had lived, but where most were put to death.

Libeskind does not articulate the alchemy by which he transformed this heady mix into architecture. He names his scheme, cryptically, "Between the Lines." One line is the slablike form of the building, the northern end of which holds tight and orthogonal to the street and the Collegienhaus. To the south, the lines of the building uncoil explosively: walls tilt crazily in a shattered and broken-open version of the Star of David.

Galleries documenting the achievements of Berliners, Jewish and non-Jewish, follow this zigzag. Slashing across the galleries in a straight line perpendicular to the street is another line, this one of empty, raw-concrete space, lit dimly by indirect slitlike windows and skylights. These are void spaces, free of artifacts, that cut obliquely through the galleries. These empty voids represent the inexpressible "absence" of Jewish lives lost in the Holocaust. Schoenberg's music is in the proportions of the void; the connections Libeskind mapped are scribed in the lines on the elevations. It is the architectural intertwining of the parallel "stories" of Jews and Berlin that wins over the jury.

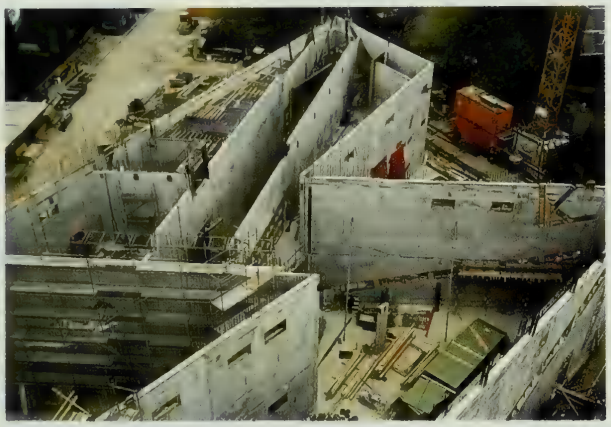
Since the program requires that the addition be entered from the existing building, Libeskind carries visitors down to enter the new building underground, offering no bridge or other above-ground visual



Libeskind played out studies of Berlin's important historical figures in a Star of David map of Berlin (drawing left). In the original massing of the project, some walls were skewed (sections below).









By 1994, the form of the linear voids crossing the galleries had become clear (above, left and right). The design placed extraordinary demands on the builders of the concrete formwork (right).

connection between the two. Arriving at the addition, visitors are confronted with three corridors. Moving straight ahead takes them to the main stair, which in a single run ascends through the entire museum, allowing visitors to choose one or all the levels.

Another axial corridor leads to a heavy metal door that opens to the base of a dark, echoing tower. It "represents the end of Berlin as we knew it," Libeskind has written, "the apocalyptic void." He calls it the Holocaust Tower, a singular gesture that recognizes the hundreds of thousands murdered, their names dutifully recorded in the city archives.

It is one of four towers that stand guard on the site, surrounding a tilted plane surmounted by 48 square columns, filled with dirt and planted with vegetation that spills out and downward. (The number represents the year of Israel's founding.) The columns are a garden named for writer E.T.A. Hoffmann, which culminates a third axial corridor representing the exile and emigration of Berliners—to New York, to Tel Aviv, and elsewhere.

As visitors move through the exhibit spaces, they encounter narrow passages, which prove to be bridges across the empty, inaccessible voids. The voids intrude, creating oblique corners, reminding the visitor of the Holocaust's profound interruption of the exhibition narrative. The bridges are marked with the 60 "stations" Benjamin describes in his "guidebook." Visitors return to the basement to exit, either the way they came in or through the garden. "There's no final space that ends the story or puts it together for the visitor," says Libeskind. "It should continue in their minds."

Though the program called for a Jewish Department, Libeskind responded that "it is not possible to compartmentalize Jewish culture, business, politics. It's not just another department; it is fused with the whole history of the city."

The Libeskind team's joy at winning such a prominent competition doesn't last long. Libeskind confesses that "most interesting competitions are tickets to oblivion. The problem was not to win the competition but to build it." No one anticipated that the fall of the Berlin Wall (it is pulled down in November) and the reunification of Germany, undreamed of when the commitment to the addition was made, would so complicate realization of the decades-long dream of a Jewish museum in Berlin.

1990 Officials consider abandoning the Berlin Museum addition. They argue that the funds are better spent on knitting the divided city's infrastructure together. Also, reconstruction of the 1866 Neues Synagogue in East Berlin is already under way (under architect Bernhard Leisering's direction), which, they argue, could accommodate the Jewish Department. An enormous neo-Moorish pile, the synagogue was once Berlin's most important, holding 3,200 worshippers. After being burned by the Nazis and bombed by the Allies in World War II, its ruins were demolished in 1958.

Libeskind's daring conception has already received international attention; it is an extremely powerful statement that Germany recognizes the enormity of the Holocaust and is attempting reconciliation. A letter-writing campaign saves the building, but the schedule is extended to stretch out the cost to the government.

In October, the two Germanies are officially reunited; a year later, Parliament votes to move the capital back to Berlin by 2000.

1991-92 A second threat to the project comes in the form of the budget. Estimates to build the design come in at DM 178.5 million. The budgeted amount is only DM 77 million (about $45.3 million in today's dollars). Reworking the design, Libeskind shrinks the floor area (to 162,000 square feet), straightens the tilted walls, simplifies the garden (the plants now grow upward), and



The raw power of the design was visible in 1995 as the scaffolding was removed: a light-dappled void space (left) and a gallery (below).



deletes all the separate towers except the one representing the Holocaust. The revised budget is DM 117 million. In 1992 the Berlin museums are reorganized. The history of the city up to 1871, the year modern Germany was formed, with Berlin as its capital, is to be depicted in the Märkisches Museum. The Berlin Museum, including the new extension, will cover the period after 1871, but has a much larger trove of artifacts from the Märkisches collection to draw on. With reconstruction of the Neues Synagogue, renamed the Centrum Judaicum, under way, officials also consider whether the mission of the Jewish Department is redundant.

A debate about how Jewish history will be portrayed in the museum addition ensues. Consultants look into whether the idea of compartmentalizing the story of Berlin's Jews, as anticipated in the program, should be dropped, which would bring the display scheme in line with Libeskind's design. Critics take issue with the proposal to integrate the accomplishments of Jews into the larger history of Berlin, claiming it would play down their role, creating a kind of forced assimilation.

Libeskind's scheme has created a paradox. Its very power has drawn international support for the idea of a Jewish museum in Berlin. But its power also draws critics: does its architecture eschew reconciliation, instead pointing a perpetually damning finger at Berliners? The building is delayed again while its ultimate mission is debated. In early 1992, it is agreed that the Jewish Department will be located in the basement level, leading to the axes to the stairs, garden, and Holocaust Tower. Other historical themes are to be developed on the upper levels, referring back at relevant moments to key Jewish contributions. The Theater and Fashion Department will also include the contributions of Jews. Though such a compromise seems to undercut the narrative Libeskind's design anticipates, the architect is not asked to alter the design. The cornerstone is laid on November 9, 1992.

1993-96 The process of selecting a director for the Jewish Department begins. The exhibition scheme of 1992 is further refined in 1993. Amon Barzel, chosen as director in 1994, rejects the plan, calling for Jewish topics to be autonomous, detached from the city-history narrative. He asks that the entire Libeskind addition become a separate Jewish museum. In the meantime, the role of the Centrum Judaicum becomes defined as the "site of Jewish self-portrayal," putting it in conflict with Barzel's vision.

Libeskind's addition is topped out in 1995, but the battle between Barzel's "autonomous" and Libeskind's "integrative" visions continues through 1996; in that year, Barzel describes the addition's mission as "[concentrating] on Jewish subjects through which one can learn more about general German history. It is no longer then possible to look at German history without also seeing Jewish history." Seen as intransigent, Barzel is fired.

1997-99 Through all of this, construction continues, although at a leisurely pace. The flow of money from the government slows because of the vast financial obligations reunification entails. Libeskind unsuccessfully attempts to broker the conflicts over the museum's identity. What remains unscathed is the museum's design. As it nears completion, it remains surprisingly true to the vision of the 1989 competition entry.

W. Michael Blumenthal is hired to direct the museum in 1997. He describes his selection as ironic, since his once-prominent family was driven from Berlin in 1939, when he was 13. Blumenthal has no museum experience, but he is an expert on German-Jewish history (his book *The Invisible Wall*, an exploration of his family's history in Germany, was published in 1998), served three American presidents as Treasury secretary

and ambassador, and has headed two large corporations. The museum hopes he will bring organizational and political skills they have not yet had. Also, says Blumenthal, "I was someone who had not been involved in the previous debates." He brings on staff Dr. Thomas Freunenheim, a museum executive with experience at the Smithsonian, and Shaike Weinberg, who was a designer and first executive of the U.S. Holocaust Memorial Museum in Washington.

The vision his team hammers out is "to depict the entire history of the relationship between German Jews and non-Jews from Roman times to the present," Blumenthal explains, "with all its high points and accomplishments, on the one hand, and all the setbacks and disasters on the other." Administratively, the museum is separate from the Berlin Museum; it is supported by the city, the national government, and private donations.

As the project neared completion in 1998, construction trailers occupied the space between new and old.

Blumenthal says the museum installation will "tell a story," an approach that is successfully used at the U.S. Holocaust Memorial Museum but is uncommon in European museums. Such a narrative scheme usually calls for structures enclosing neutral, windowless, "black box" spaces. Blumenthal recognizes the curatorial challenge in Libeskind's slits of glazing criss-crossing the galleries and the display complexities that are engendered by narrow passages and acute-angled rooms.

Some museum experts tell Blumenthal the museum can't succeed. "It's challenging as hell," he admits. But "the architecture is a tremendous asset for a new museum. Many museums have to develop a clientele. We will have one automatically because the building is so extraordinary. Not a day goes by that people don't plead to get in."

The building is completed at the end of 1998 (the final project cost is about $80 million), but the installation will not be finished until October 2000. The empty building will open to the public for tours beginning this month. ■



Project: *Jewish Museum, Berlin*
Owner: *Land Berlin*
Architect: *Studio Daniel Libeskind—Daniel Libeskind, architect; Matthias Reese, Jan Dinnebier, project architects; Stefan Blach, David Hunter, Tarla MacGabhann, Noel McCauley, Claudia Reisenberger, Eric Schall, Solveig Scheper, Ilkka Tarkannen*
Engineers: *Cziesielski + Partner (civil); GSE Tragwerkplaner, IGW Ingenieurgruppe Wiese (structural)*
Consultants: *Müller, Knippschild, Wehberg (landscape); Lichtplanung Dinnebier KG (lighting); ARGE Beusterien & Lubic (management)*

Sources
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Built-up roofing: *Deutsche Asphalt*
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Windows and glazing: *Trube + Kings*
Skylights: *Lacker*
Metal doors: *Hodapp*
Wood doors: *SEG*
Door hardware: *SEG*
Acoustical ceiling and suspension grid system: *Stift*
Paints and stains: *Mako*
Floor and wall tile: *Picher*
Carpet: *Eckhard + Solina*
Flooring at void bridges: *Rec*

CAN ARCHITECTURE TRANSFORM A CULTURE? AN ASSESSMENT

A visitor to the still-empty Jewish Museum can appreciate how the architecture contributed to the unending debate about the installations. The building "argues" its point of view so forcefully that it's hard to imagine displays that will be sympathetic to the architecture and also allow historic but prosaic objects to hold their own.

The brooding power of the exterior does not prepare the visitor for the more neutral and museum-like interiors. The gallery proportions are conventionally high and loftlike. The slashing window openings are dramatic, offering jaggedly cropped city views (a reminder that events depicted in displays occurred very close by), but the openings also read as a kind of scribed, background graphic.

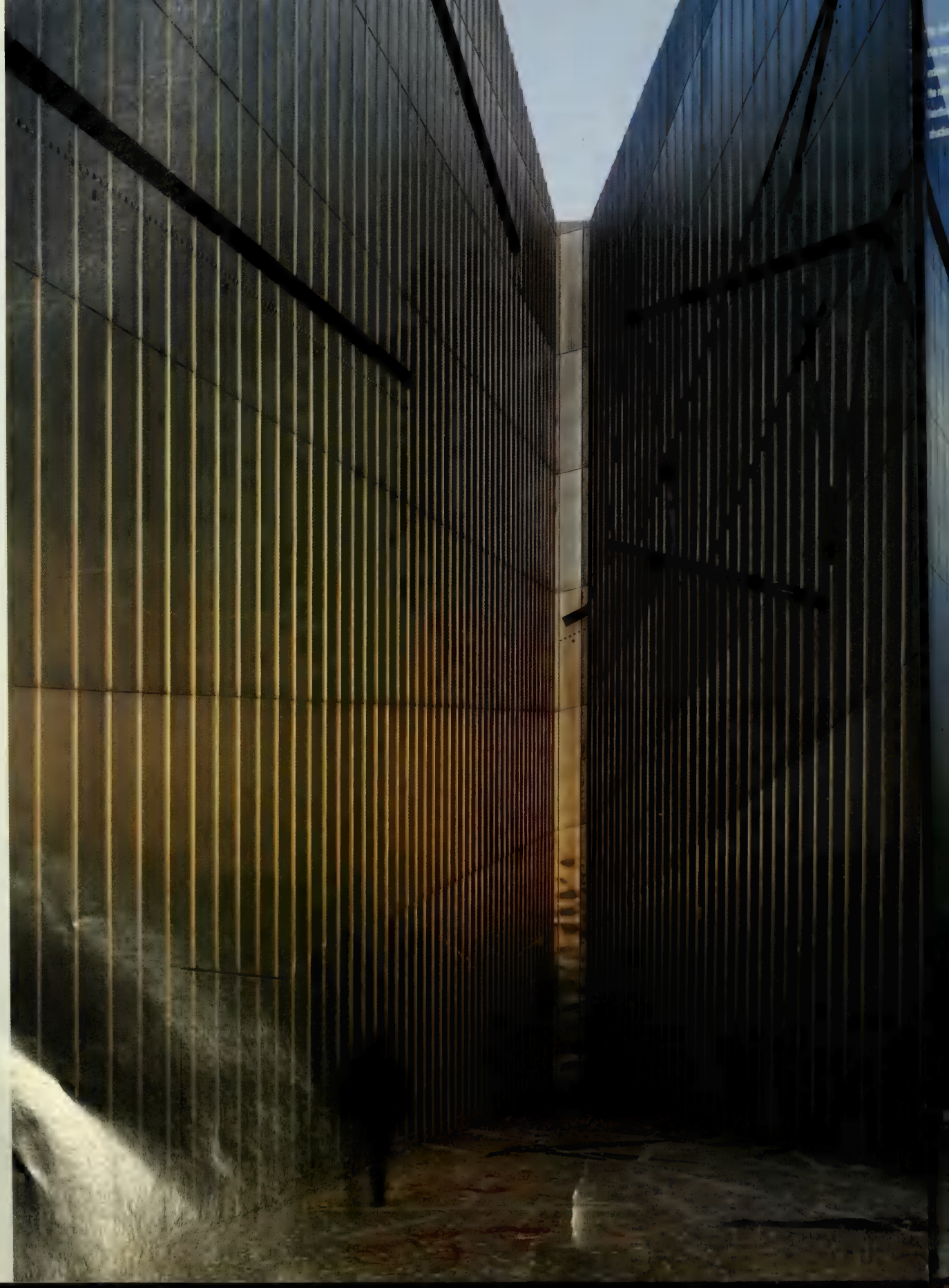
The building testifies to Berlin's commitment to reconciliation. Fresh, raw, and driven by emotion, it avoids the mawkish theatricality that is endemic to recent memorial architecture, but not by much. Whether its expression will wear well is another question, especially since the building is certain to spur less confidently rendered imitations.

Even now, it is hard to assess Libeskind's most daring moves: the voids and the Holocaust Tower. Will they make people think? Or, because of their contrast with displays that are more self-explanatory, will they have to be explained and there by come to seem a kind of diorama, albeit in a fashionably abstract style?

Critics have complained that the complex and difficult story of Jews and Berlin should have been told by curators, not the architect. "It is the responsibility of architecture and culture to address events and history," Libeskind replies. Yet he does not see the building as a specific statement about history, but rather a composition that deals with the contradictory notions of "incredible contributions and abysmal losses," as he puts it. "I thought of this as a living presence. History is not over."

Libeskind admits a powerful faith in the ability of people to learn from history and from architecture. In this he eerily echoes the assimilated Jews of the Nazi era. They believed profoundly in German culture and felt proud of their contributions to it. That such a culture could succumb to evil on the gargantuan scale of the Final Solution was inconceivable for all too many of them.

But, Libeskind believes, architecture remains a culturally powerful force. As he declared in a recent talk in New York, "A building and a city are always present across time and across history. The act of building transforms the culture of a city." Time will tell. *J.S.R.*







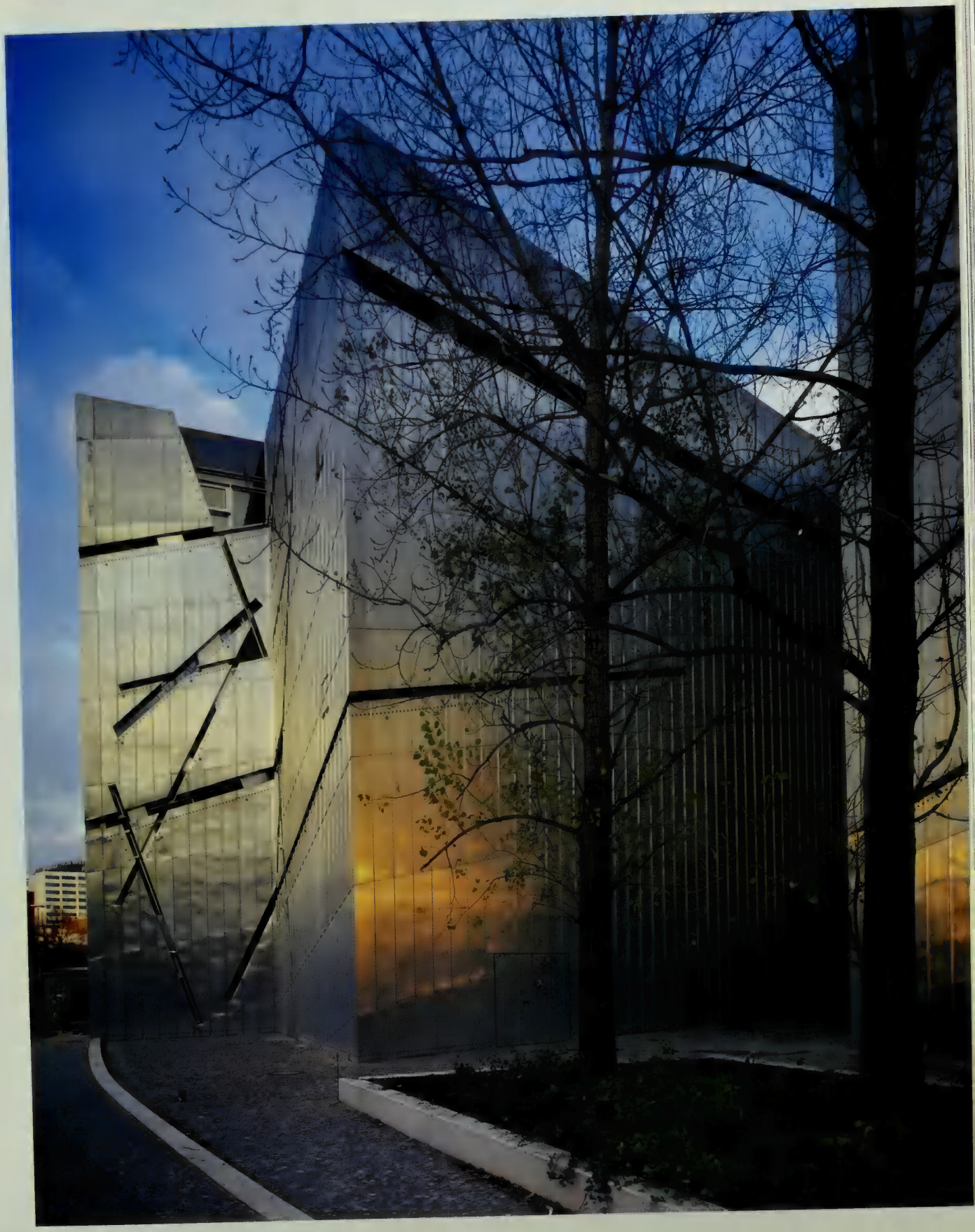




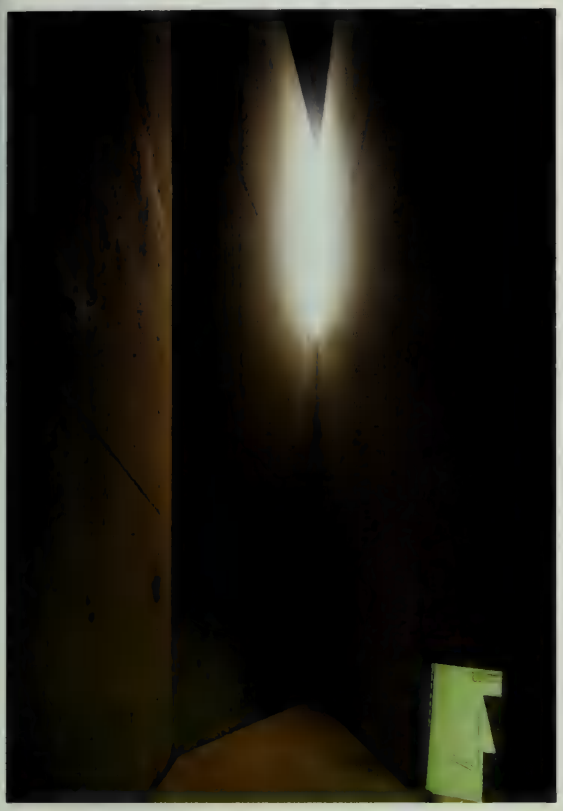
No passerby would confuse the Jewish Museum with an office building or a government ministry (views from street left and opposite). Berlin's contradictory history—aspiration and accomplishment versus repression and tragedy—is almost literally written all over the building's facades. The gestures of form and pattern appear to be the product of a mathematical formula. Libeskind, though, does not expose his compositional process to scrutiny. Although the code seems knowable, the design is disturbing because its sources remain unrevealed.

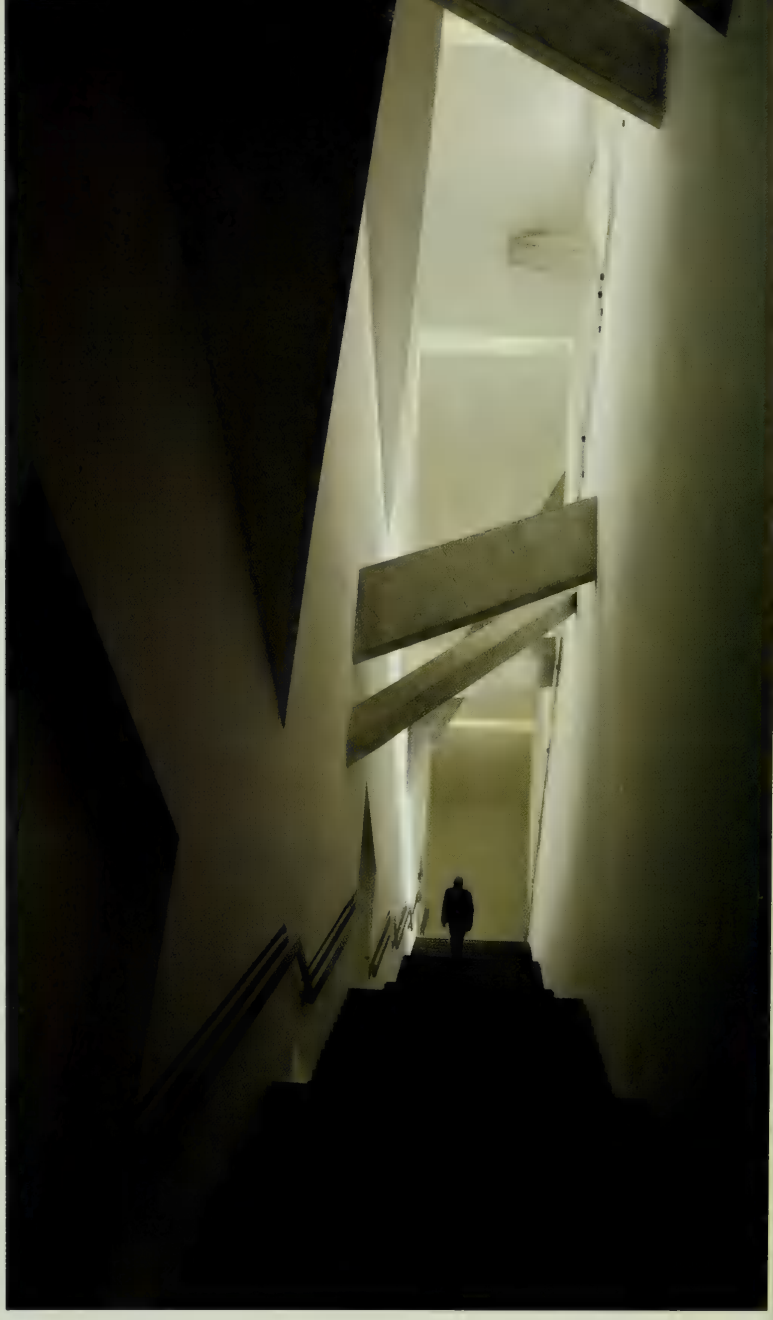


1. *Existing museum*
2. *Addition*
3. *Existing garden*
4. *New garden*





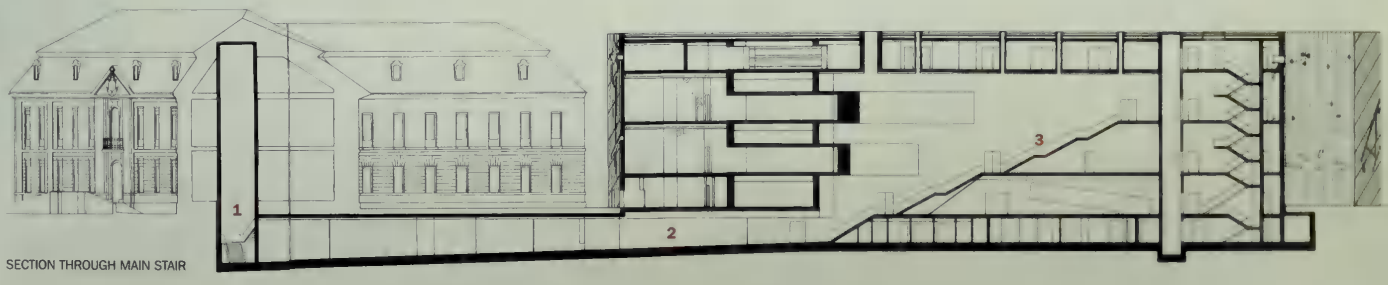




The Holocaust Tower (above) is lit only by a slit in the wall. The tower and the void spaces (opposite) are the building's chief memorializing elements.

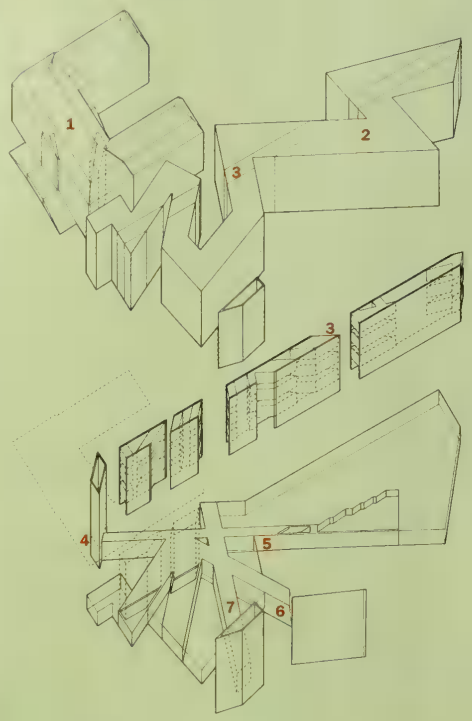
One long stair (photo right and section below) offers access to all levels of the museum. The beams, not originally part of the design, offer lateral resistance.

1. *Entrance stair*
2. *Corridor to exhibits*
3. *Main stair*

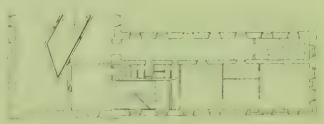


SECTION THROUGH MAIN STAIR

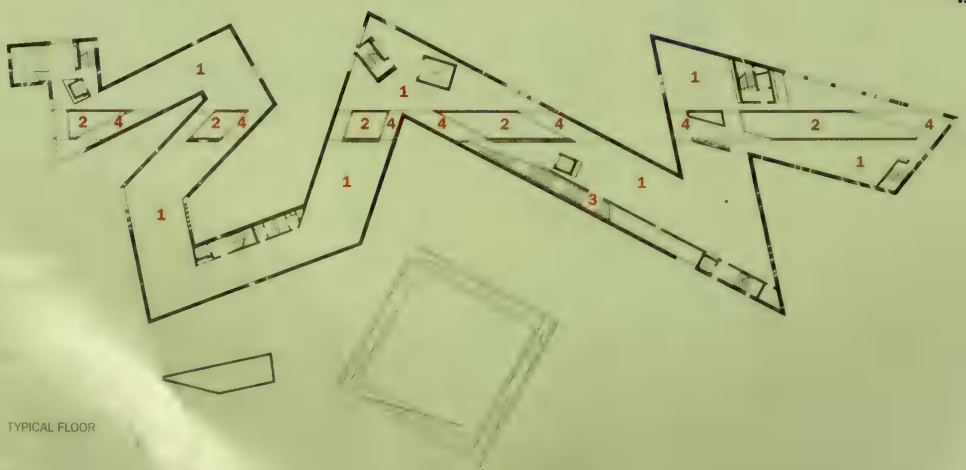
1. *Existing museum*
2. *Addition*
3. *Voids*
4. *Access from existing building*
5. *Corridor to galleries*
6. *Corridor to garden*
7. *Corridor to Holocaust Tower*



One of the choices visitors can make on reaching the subterranean part of the addition (axonometric left) is to head toward the E.T.A. Hoffmann garden (7, with construction tape). In galleries, the pattern of recessed ceiling light tracks and terrazzo floors echoes the crisscrossing glazed slits (4). In other areas, glazing reads like artwork (8, 9). Where a bridge over a void interrupts the flow of the galleries (typical plan, below), the exterior of the void is painted black (3). Administrative space (1), some of which is skylit (5, 6), is located on the top floor.



1. *Gallery*
2. *Void*
3. *Main stair*
4. *Bridge over void*



TYPICAL FLOOR



1



7





2



3



4



5

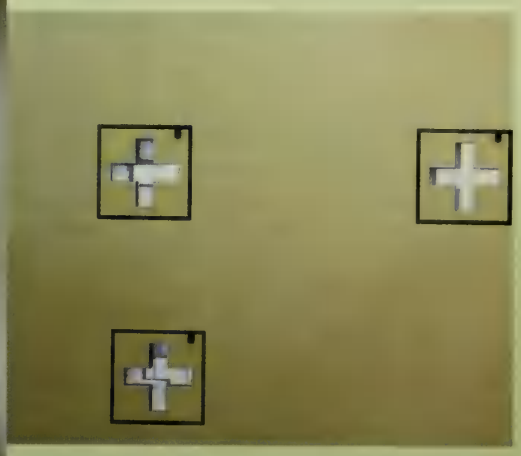


6



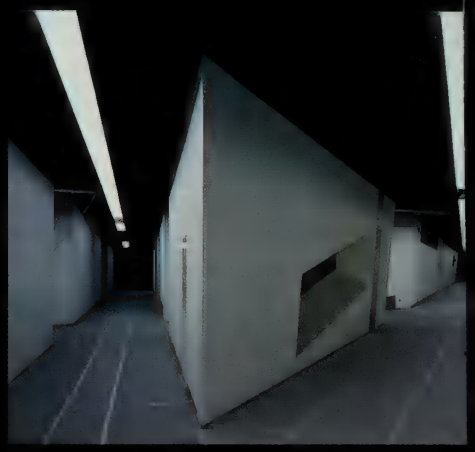


8



9





ESSAY: DANIEL LIBESKIND'S MUSEUMS CHALLENGE CURATORS AND THE PUBLIC ALIKE.

by Victoria Newhouse

All of Daniel Libeskind's museum schemes continue an ongoing effort by architects of this century to break away from rectilinear architecture in order to stimulate a more active role for the viewer. Yet for all its novelty, the Jewish Museum recalls a classic Berlin precedent: in 1830, Karl Friedrich Schinkel's Altes Museum opened without any art, just as Libeskind's museum has opened without the displays of historic documents and art for which it was created. The heated argument over whether the Altes Museum should be called a monument, a treasury, or a museum prefigured the Jewish Museum's five name changes. Now a paradigm of museum design, Schinkel's building owes its success to his insistence on the parity of art and architecture, a notion that still fires debate today.

There was no such controversy about Libeskind's design for the Felix-Nussbaum-Haus, a little jewel of a museum in the northwest German town of Osnabrück. Here the architect had a clear mandate: to house some 160 paintings by a Jewish native son who had depicted the horror of the Holocaust with startling realism.

Like the Jewish Museum, the reserved streetfront of the Felix-Nussbaum-Haus masks the complexity of its plan and the unsettling nature of its interiors. The two museums—each a freestanding addition to an older building—were designed and built within the same time frame (1989–98 for Berlin, 1996–98 for Osnabrück) and share a close family resemblance. In both, the architecture itself evokes the experience of the Holocaust.

The quirky oblique interiors produced by Nussbaum's rotational asymmetry of colliding forms—similar to those in the Jewish Museum—amply fulfill arguments for the sensuality of such spaces made in the early 1970s by Claude Parent and Paul Virilio. What the two French architects called the "function of the oblique" rejected Euclidian space in favor of canted walls and tilted floors that unbalance the body, thereby bringing it into an unusually tactile relationship with a building. They realized their theory in the 1964–66 Church of Sainte-Bernadette du Banley at Nevers, France. Though Libeskind says their concept did not influence him, his two German museums are indeed both disquieting and multisensory: floors slope in places; interiors are slashed by light that penetrates tortured window slits; heavy steel doors clang shut; metal floor gratings in the Nussbaum allow sound to penetrate from unexpected areas, as it might to a person in hiding; the Jewish Museum's Holocaust voids echo eerily.

Felix Nussbaum was forced to flee Osnabrück in 1933; subsequent years of hiding in various European cities ended with his internment in 1940 and his death at Auschwitz four years later. Links between the cities where Nussbaum sought refuge dictated the Osnabrück plan, just as the design of the Jewish Museum was developed from lines drawn between the addresses of prominent Berlin Jews.

The Nussbaum museum is composed of three parts. The blank concrete wall of a long, narrow 7-foot-4-inch-wide segment is tucked between two historic structures containing the existing Cultural and Folk Art Museums. Referred to as the Gallery/Corridor, this first part is interrupted at one end (Libeskind's reference to the artist's interrupted life) for the entranceway in its short side. A small lobby connects the constricted passageway with the more expansive oak-clad exhibition area, the House of the museum's name. A wide, zinc-clad suspended bridge connects the two areas to one another and to the Cultural Museum.

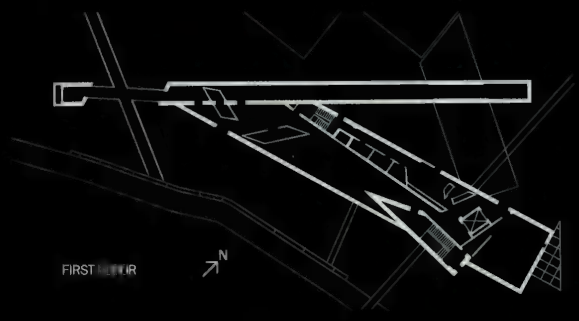
Each segment of the museum complex is used to exhibit work of different periods: the claustrophobic concrete Gallery/Corridor for canvases executed in detention camps, the larger and more luminous plaster interiors of the House and Bridge for pre-1933 paintings and for temporary installations.

The Felix-Nussbaum-Haus fulfills the monographic museum's ideal of exhibiting an artist's work in spaces that complement it and relate to the conditions in which it was created. The 17th-century mansion of the Musée Picasso in Paris is reminiscent of the imposing houses the artist preferred; the converted warehouse of the Andy Warhol Museum in

Victoria Newhouse is an architectural historian who contributes to a number of design publications. She recently published a book on the architecture of museums, Towards a New Museum, and is the author of Wallace K. Harrison, Architect.



As in the Jewish Museum, Libeskind's Felix-Nussbaum-Haus in Osnabrück features an empty tower (foreground in photo this page left and plan below). Skewed and crossing lines figure significantly in the Osnabrück project too, but not as densely as in Berlin (opposite left). In Berlin, visitors are forced to choose a path (opposite right); in Osnabrück the single path can lead ambiguously (this page right).



Pittsburgh resembles his Factory studio. But by stretching this concept to call up the specter of Nazism as well, the Nussbaum goes beyond this single-artist-museum ideal to become a powerful metaphor for an era.

Equally successful in conjuring up the Nazis' terrifying negation of normalcy (albeit with gestures of hope such as the increased window openings at upper levels), Berlin's Jewish Museum also depends on intentional disorientations that are diametrically opposed to the so-called neutrality of some contemporary museums, for example Renzo Piano's 1997 Beyeler Foundation Museum in Basel Riehen, Switzerland. Whereas

LIKE THE JEWISH MUSEUM, THE FELIX-NUSSBAUM-HAUS HAS A COMPLEX PLAN AND UNSETTLING INTERIORS.

many of the memorials undertaken by the more than 100 Holocaust organizations—such as James Ingo Freed's U.S. Holocaust Memorial Museum in Washington, D.C., created by the United States Holocaust Memorial Council—rely on figural representation to convey events far removed in time and place, Libeskind rejects such methods in Berlin, where the events actually occurred.

The distinction is epitomized by a void instead of the plethora of information offered in Washington, D.C. While Freed's museum has proven effective for an American audience, Libeskind feels that such evidence of the Holocaust is omnipresent in Germany. Rather than the chronological narrative that unfolds in Washington's black box spaces, Berlin's emotionally charged galleries are intended for thematic displays. The architect suggests as one possibility large piles of dolls alluding to both a former Jewish industry and the millions of children who were killed during the Holocaust.

There is a danger that the Jewish Museum's effectiveness could be compromised, as some art museums have been, by numerous program changes. Because Renzo Piano and Richard Rogers completed their design for the Centre Georges Pompidou in Paris (1977) with no art or director in place, the museum's permanent collection galleries suffered. More recently, programmatic uncertainty for art museums by Alvaro Siza at Santiago da Compostella (1993) and by Richard Meier at Barcelona (1995) produced interesting buildings that bear little relationship to their contents. The very elements that reinforce the impact of the Jewish Museum's architecture—overscaled spaces, angled walls, and long window slits that rule out large wall areas for hanging art or artifacts—require especially sensitive installations. At the Felix-Nussbaum-Haus, the Gallery/Corridor's unusually low light and spatial constriction actually dramatize the paintings of Nazi repression.

Program changes do not seem to threaten Libeskind's three current museum projects—the Boilerhouse Extension to the Victoria & Albert Museum in London, the Imperial War Museum of the North at Manchester, and the Jewish Museum in San Francisco. In London he proposes a vertical reinvention of Berlin's horizontal zigzag plan within what appears to be precariously balanced giant boxes, their exteriors a mosaic of structural tile Libeskind calls fractals. In the San Francisco project, two wavelike structures twist and interpenetrate an existing building for an institution that attempts to reinforce Jewish identity in a city where assimilation is unusually high.

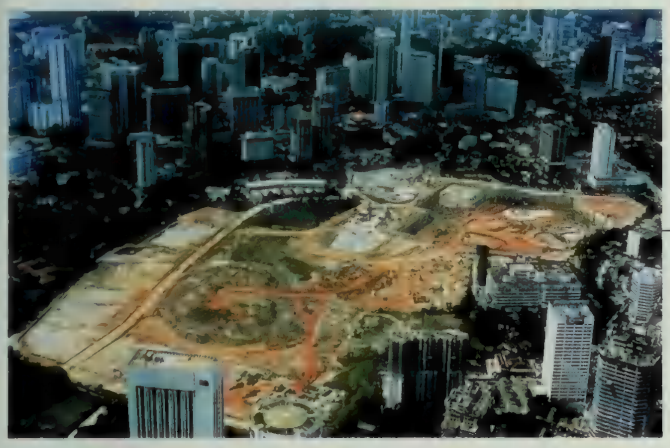
In 1925 Le Corbusier began to propose innovative structures and forms for national and international fair pavilions, and mid-century Frank Lloyd Wright's Guggenheim Museum in New York provided multiple perspectives between viewed art and viewers. Furthering the means of creating dynamic space, the fractured forms of recent exhibition buildings also reflect today's social fragmentation and artistic anarchy. Prime examples are Peter Eisenman's Wexner Center for the Arts (1989) in Columbus, Ohio; the circulation spaces of Rem Koolhaas's Kunsthal (1993) in Rotterdam; Coop Himmelblau's Groninger pavilion (1994), also in the Netherlands; Frank Gehry's Guggenheim Museum (1997) in Bilbao, Spain; and Zaha Hadid's project for the Cincinnati Contemporary Arts Center (1998).

Hopefully, the unresolved program of the Jewish Museum in Berlin will not compromise lively architecture in which forms poignantly remember the eradication of a culture. ■



Although only 88 stories, Petronas Towers rise to 1,483 feet (including 241-foot pinnacles). Each tower has 2.3 million square feet of space.

Other than their status as the world's tallest buildings, what else do Cesar Pelli's **PETRONAS TOWERS** have going for them?



The towers rest on concrete foundation mats supported by friction piles dug as deep as 413 feet. The site was once a racetrack.

by Clifford A. Pearson

If they were merely the tallest buildings in the world, the Petronas Towers in Kuala Lumpur would be little more than real estate curiosities, worthy of our brief attention. After all, their tenuous hold on the height record—challenged by Chicago's Sears Tower, which still has the highest observation deck and habitable floor—will be lost completely in 2002 or 2003 when Kohn Pedersen Fox's World Financial Center is completed in Shanghai. But there's more to these Malaysian twins than just scraping the sky. Though modern in construction, use of materials, and expression of structure, the Petronas Towers break with Modernist orthodoxy by being symmetrically arranged on the site and figurative in design. They also represent an attempt by a Western architect to interpret Islamic design ideas in a contemporary way.

Built as a symbol of national pride in what had been a rapidly emerging Asian powerhouse, the project is now wrapped in more ambiguous meanings—a consequence of the economic and political turmoil that has swept through Malaysia in the last year and a half. Although the Petronas Towers may appear today as icons of hubris, they will certainly outlast their immediate economic context and acquire less vainglorious connotations—much as the Empire State Building came to stand for more than the folly of building during the Great Depression.

Getting the ball going

The project has its roots in the early 1990s, when Kuala Lumpur was shedding much of its heritage as a leafy colonial outpost and assuming the status of one of the hot real estate markets in Asia. With demand for modern office space rising, the Malaysian government decided the time was right to move the Selangor Turf Club from its strategic location in the city's so-called Golden Triangle to a site on the edge of town. The 104 acres occupied by the colonial-era racetrack offered a great opportunity to create a new commercial center for the Malaysian capital.

WWW On The Web: *Take a virtual tour of this project at www.archrecord.com.*

In 1990 an international competition was held to select a master plan for what is now called the Kuala Lumpur City Centre (KLCC). A committee representing the major investors in the project, the city, and the national government selected the United States firm of Klages, Carter, Vail & Partners (KCV) based on its scheme for an integrated, mixed-use development that would include a large central park bordered on three sides by office buildings, hotels, shopping centers, apartment towers, and entertainment complexes. In the scheme, buildings would occupy only 37 acres, while 67 acres would be developed as public areas, including 50 acres for the park. Reserving such a large amount of outdoor space for public use was an unusual decision in the hard-nosed world of Asian development. The plans called for building 18.5 million square feet of commercial and residential space on 22 lots in phases over a 10-to-15-year period.

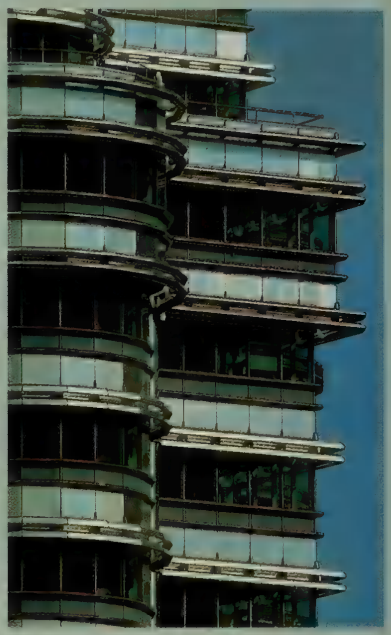
As plans for KLCC were solidifying, Petronas, Malaysia's national oil company, was looking to consolidate its 14 different offices in Kuala Lumpur into one headquarters building. In January 1991 it agreed to become a primary tenant of the first buildings at KLCC, as well as a majority stakeholder in KLCC Holdings Sendirian Berhad, the investment holdings company that owns the development.

With the involvement of Petronas came the participation of the highest levels of the Malaysian government, making this more than just another big project in a boom town. Indeed, Prime Minister Mahathir Mohamad took a strong interest in the project, seeing it as a symbol of his country's modernization and rising profile on the international scene. He

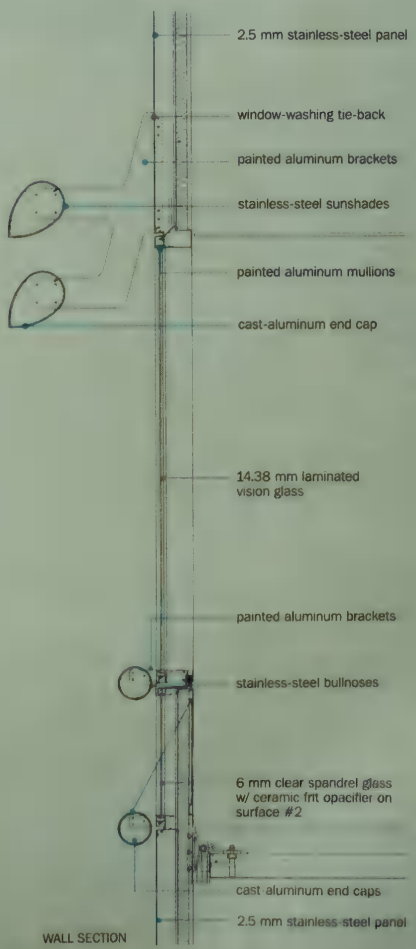
Project: *Petronas Towers, Kuala Lumpur, Malaysia*
Owner: *Kuala Lumpur City Centre Holdings Sendirian Berhad*
Architect: *Cesar Pelli & Associates—Cesar Pelli, FAIA, design principal; Fred Clarke, FAIA, project principal and collaborating designer; Jon Pickard, AIA, design team leader; Larry Ng, AIA, project manager; John Apicella, David Coon, Edward Dionne, Peter Follett, Michael Hilgeman, Mitchell Hirsch, Russell Holcomb, Alison Horne, Gregg Jones, Keith Krolak, Vlad Simionescu, Heather Young, David Chen, John Clegg, Jerome del Fierro, Roberto Espejo, Sophie Harvey, Kristin Hawkins, Steven Marchetti, Robert Narracci, Dean Ober, Mark Outman, Enrique Pelli, Neil Prunier, Roger Schickerdantz, B. J. Siegel, David Strong, Jane Twombly, designers*
(credits continue on last page of story)











WALL SECTION

The two towers were built simultaneously by different sets of general contractors, an arrangement that injected some healthy competition into the process and ensured that the entire project didn't depend on just one group. It also created a situation where two sets of builders explored the best methods and techniques for getting the job done. Each team was a joint venture between foreign contractors and a Malaysian firm and had as one of its goals the transfer of expertise to the local company. The same was true for subcontractors, such as those for the curtain wall, vertical transportation, and poured concrete. Overseeing the entire project was a KLCC subsidiary that is now applying its new expertise to other large developments. *C.A.P.*



1. *Petronas Tower*
2. *Concert hall*
3. *Retail complex*
4. *Office tower*
5. *Hotel*
6. *Future building*

even made suggestions on the architectural design, some of which found their way into the final scheme.

In April 1991 a design competition was held for the northwest portion of the site, the first group of buildings to be developed. The invited competition included Murphy/Jahn, Aldo Rossi, Johnson Burgee, Kohn Pedersen Fox, KKS (of Japan), and Cesar Pelli & Associates. In evaluating the entries, the selection committee looked for designs that "complied with the master plan, were functional and efficient, and expressed the culture and heritage of Malaysia," recalls Abdul Rahim Naim, chief operating officer of KLCC (Holdings) Berhad. "We wanted something extraordinary, and that is what Mr. Pelli gave us. His design has elements of Islamic architecture identifiable with our country. The other architects' designs looked as if they could be built anywhere. Mr. Pelli's design could be in no other place but Kuala Lumpur."

Learning to speak Malaysian

The program for the design competition showed two towers of different heights asymmetrically placed on the northwest corner of the site and called for a solution that would be Malaysian in character. "No one knew what it meant for a building to be 'Malaysian,'" says Cesar Pelli, FAIA. "We were flying blind." But by studying Islamic architecture, Pelli learned

WHEN A BUILDING IS TALLER THAN ITS NEIGHBORS, IT SHOULD MARK ITS PLACE ON THE SKYLINE, SAYS PELLI.

that repetitive geometries are keys to understanding buildings in predominantly Muslim countries such as Malaysia.

Although initially each tower's plan was based on a 12-pointed star, the architects eventually adopted a scheme using intersecting squares, which form an eight-pointed star—a popular form in Islamic design. To enhance the evocation of traditional "arabesques" and increase the amount of space on each floor, the designers added curved bays between the eight points. Such complex geometries are a way of linking the buildings to Islamic design traditions without resorting to "cultural pastiche," states Pelli. Twin 16-branched towers clad in steel and glass are not specifically Malaysian. "But because they will appear for the first time in Kuala Lumpur," says Pelli, "they will be forever identified with the place—in the same way the Eiffel Tower is identified with Paris, although its structure and form were not derived from Parisian or French architecture."

Another important decision, says Pelli, was to "make the towers figurative" and place them symmetrically on the site. Instead of following the example of Ludwig Mies van der Rohe's Lake Shore Drive apartment towers in Chicago or Minoru Yamasaki's World Trade Center in New York, where twin high-rises slide past one another on the diagonal, Pelli set his Malaysian skyscrapers shoulder to shoulder—like men standing at attention. Not only were the tower forms themselves figurative, but the space between them was too, with the center of the void the focal point of the composition. Adding a bridge linking the towers at the 41st and 42nd stories made the space between the structures an even stronger element.

The result, says Pelli, is a design that is unabashedly symbolic, that announces its presence as a landmark and a gateway to an important new development. "When a building is taller than its surroundings, it has a responsibility to mark its place on the skyline. It has a responsibility to the civic realm," states the architect.

The buildings in Pelli's competition entry were not the world's tallest. Only after Pelli was awarded the commission and his firm started working on design development did the prospect of setting a record come up for discussion. By June 1993 the designs called for twin towers of 1,426 feet (432 meters), just 36 feet less than the Sears Tower in Chicago. By stretching the size of the spires on top of the towers, the architects pushed the total height of the buildings to 1,483 feet (452 meters) and created better proportions, explains Larry Ng, AIA, the project manager for Pelli's firm. "Our goal was to design the most beautiful buildings, not necessarily the tallest," states Ng. The client agreed to go with the taller, more elegantly proportioned design.

Based on a scheme by Klages, Carter, Vail & Partners, Pelli's master plan (above) contrasts a "hard" street edge (below) with a less formal "soft" edge of buildings facing the park.





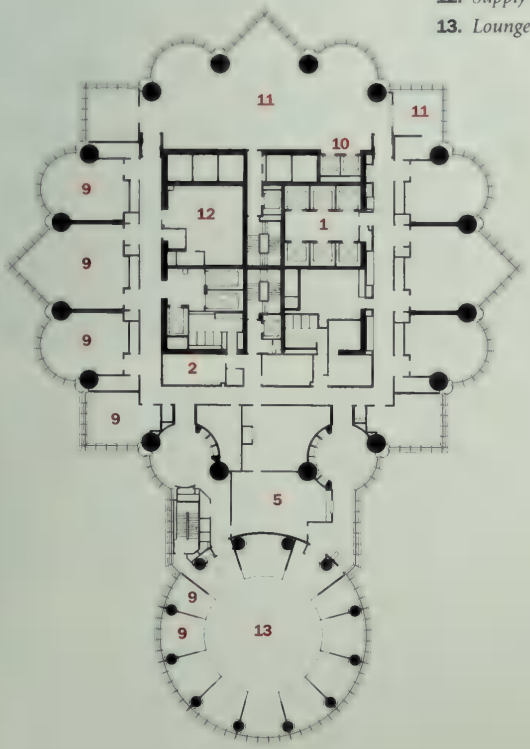
Beacons for the entire city, the towers are also a gateway to the Kuala Lumpur City Centre, which includes a Mandarin Oriental hotel (lower left in photo) and a domed retail center (in foreground).

Conceptual plans by STUDIOS show how typical upper and midlevel floors (left) can be laid out. Petronas occupies all of one tower and part of the second. The twin towers share a common podium with the Petronas Concert Hall and a 1.5 million-square-foot retail center (plan below). The shape of the twin towers is a geometric elaboration on the intersection of two squares (bottom).



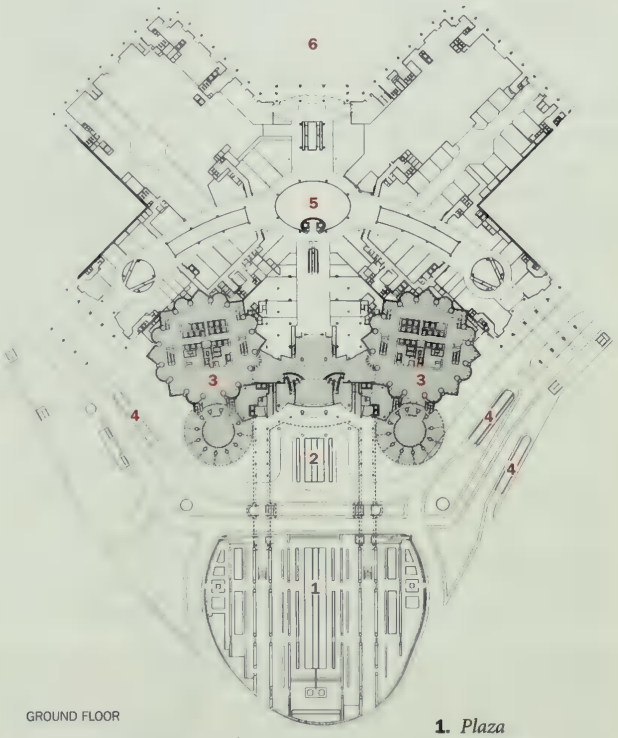
1. *Elevator lobby*
2. *Copying*
3. *Mechanical*
4. *File*
5. *Secretary*
6. *Executive assistant*
7. *Office*
8. *Prayer*
9. *Conference*
10. *Shuttle elevators*
11. *Reception*
12. *Supply*
13. *Lounge*

EXECUTIVE FLOOR CONCEPTUAL LAYOUT



CONFERENCE CENTER CONCEPTUAL LAYOUT

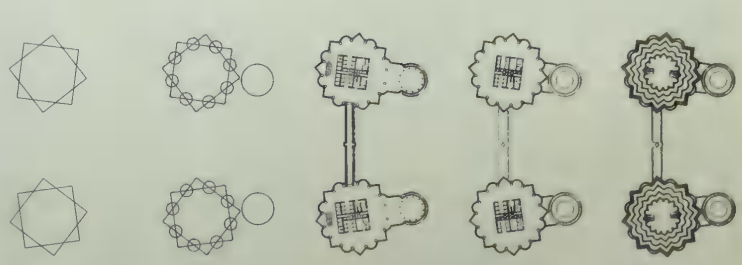
0 20 FT. 6 M.



GROUND FLOOR

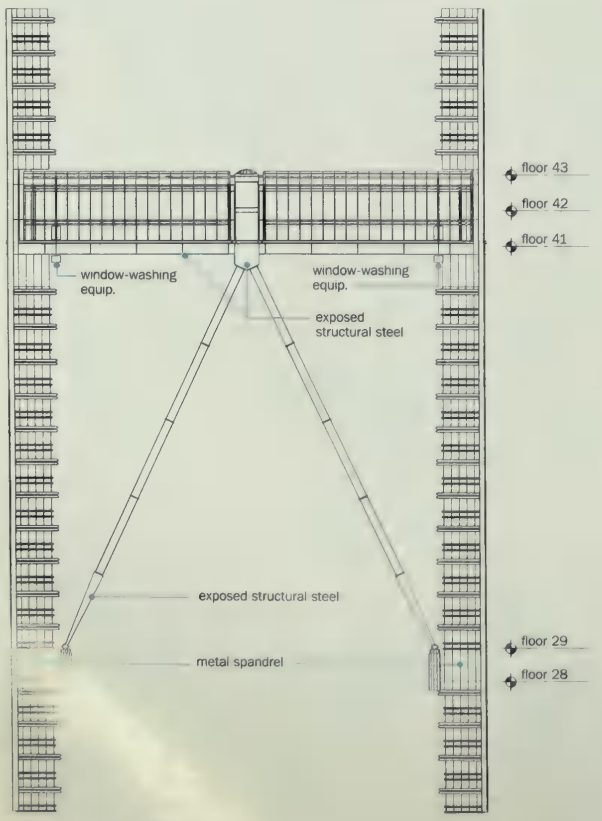
0 100 FT. 30 M.

1. *Plaza*
2. *Forecourt*
3. *Tower lobby*
4. *Ramp to parking*
5. *Retail center*
6. *Esplanade and park*



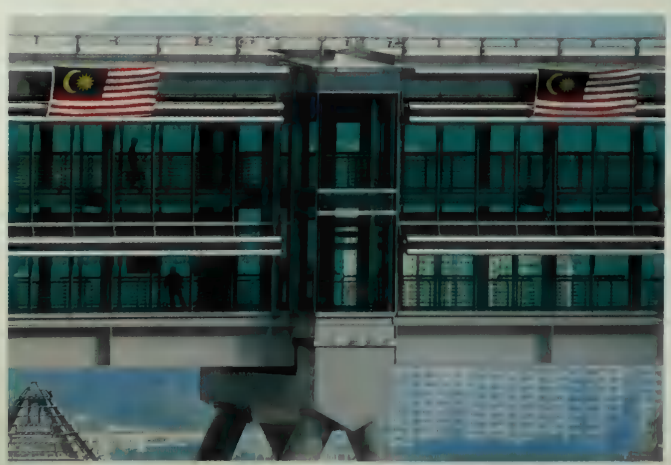
EVOLUTION OF BUILDING GEOMETRY

Connecting the towers at levels 41 and 42, the skybridge is a dramatic element that helps define the buildings as an urban portal and, on a more prosaic level, serves as a fire exit from one skyscraper to another. Fabricated in South Korea and transported in 493 pieces, the bridge was assembled on site and then raised 604 feet into the air by eight hydraulic jacks. After being lifted into place, the 193-foot-long steel bridge was attached to the office towers' perimeter concrete frames at the 41st floor and supported from below by a pair of V-shaped legs resting on spherical bearings secured to the 29th floor. Each leg is comprised of two 3½-foot-diameter steel tubes. The architects had considered other designs for the bridge, including a truss structure that would be suspended from above by cables. But by using steel girders instead of trusses, the architects and engineers eliminated the need for crisscrossed members and made the bridge more transparent. The ends of the bridge girders sit on sliding bearings, allowing the towers to move up to 10 inches. To accommodate twisting, the girders have rotational centering pins on a box girder that crosses the bridge at midspan. Despite initial impressions, the bridge is independent of the towers' structural system. Because the skybridge can be used as an emergency exit from the conference center on the 41st and 42nd floors, it paid for itself by eliminating the need for another fire stair. *C.A.P.*



SKYBRIDGE ELEVATION





Because the Petronas Towers would be such important landmarks on the Kuala Lumpur skyline, Pelli wanted to make them as slender and elegant as possible. The final design achieved an aspect ratio (height to width) of about 9.4, significantly greater than a typical high-rise's 7.0, reports Pelli. Setbacks at six different levels and a 208-foot mast on top of each tower emphasized the vertical nature of the buildings.

Even before the design of the towers was finalized, excavation work had begun. But as digging progressed, major problems with the soil were discovered. The limestone bedrock below the towers turned out to be sloped steeply to one side, making it much more expensive and difficult to build the foundations as planned. So the architects, engineers, and client agreed to move the towers about 200 feet to the southeast, where the buildings would sit on a concrete mat anchored to the soil (not bedrock) by concrete friction piles.

The new placement had the added benefit of setting back the towers further from the nearby streets, providing more room for vehicular access and ramps leading down to underground parking. It also created the opportunity to design a public plaza in front of the buildings. "The extra space allowed us to establish a procession from a formal garden out front to a gateway formed by the two towers and finally to an informal park at the center of the KLCC site," says Ng.

In addition to the Petronas Towers, the first phase of development at KLCC included an 850-seat concert hall set on a podium level between the towers, a 1.5 million-square-foot retail center behind the towers, a Mandarin Oriental hotel designed by Wimberly Allison Tong & Goo, an office tower by Kevin Roche John Dinkeloo & Associates, and another office tower by the Malaysian firm Kumpulan Senireka. Pelli designed the concert hall and was design consultant on the six-story retail complex, which was designed by the Walker Group CNI. Major landscaping features included the garden plaza by Balmori Associates and the public park by the late Brazilian designer Roberto Burle Marx.

A "soft tube" runs through it

Like most high-rises in Asia, the Petronas Towers are mostly concrete structures. Not only are contractors more familiar working with concrete in this part of the world, but the material is twice as good as steel in reducing a tall building's tendency to sway in the wind. Each tower has what Pelli calls a "soft tube" structure: an outer ring of 16 concrete super columns spaced widely apart (between 26 and 33 feet on center) and connected to each other by slightly arched ring beams. The columns are nearly eight feet in diameter at the base of the building, but are more slender on higher floors. At most of the setbacks and at the upper portion of the tower, the columns slope in toward the center of the structure, enhancing the building's svelte profile. Concrete outrigger beams tie the perimeter columns to the building's 75-by-75-foot concrete core at the 38th and 40th levels. Making all the structural dynamics possible is high-strength concrete (10,000 pounds per square inch), much stronger than the 6,500 psi concrete typically used in Malaysia.

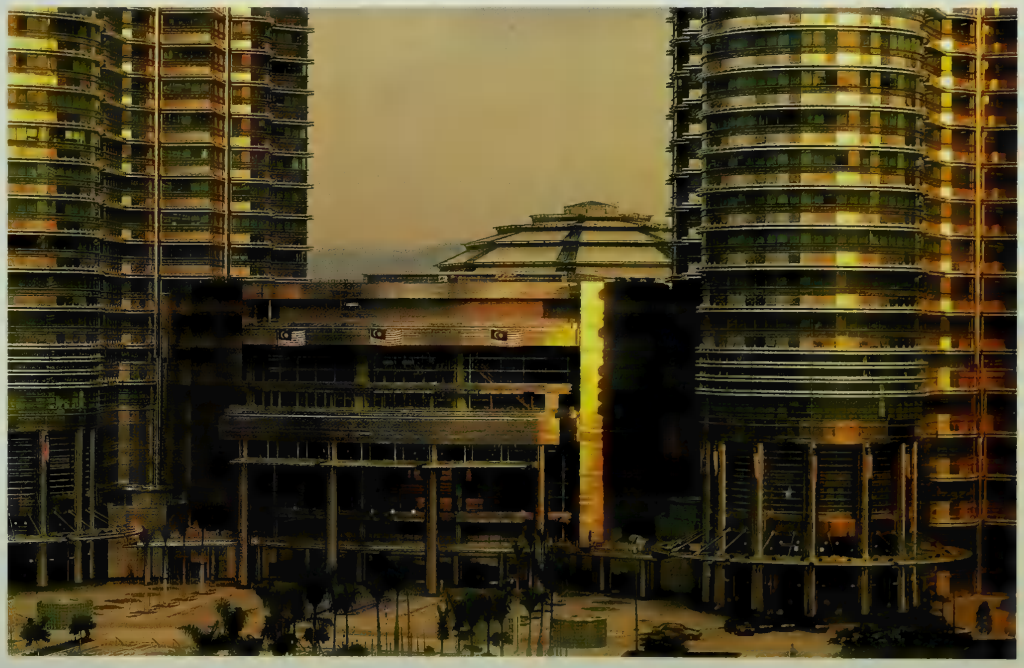
Steel also plays an important role in the building's structure. Not only are floors made of composite metal decking and steel infill beams, but each of the curved or pointed bays cantilevered beyond the perimeter columns is steel-framed. The 241-foot-tall pinnacle on top of each tower is also steel-framed. In addition, the dramatic skybridge linking the two towers is framed by twin steel-plate girders.

The sophisticated structural system with widely spaced perimeter columns "makes this an extraordinarily transparent building from the inside," states Pelli. "It's the most column-free high-rise I've ever designed." And for privileged workers with offices in the bays projecting beyond the columns, the wraparound views are particularly impressive.

THE BUILDINGS' LINEN-FINISH STAINLESS-STEEL SKIN CAPTURES THE LIGHT AND DIFFUSES IT.

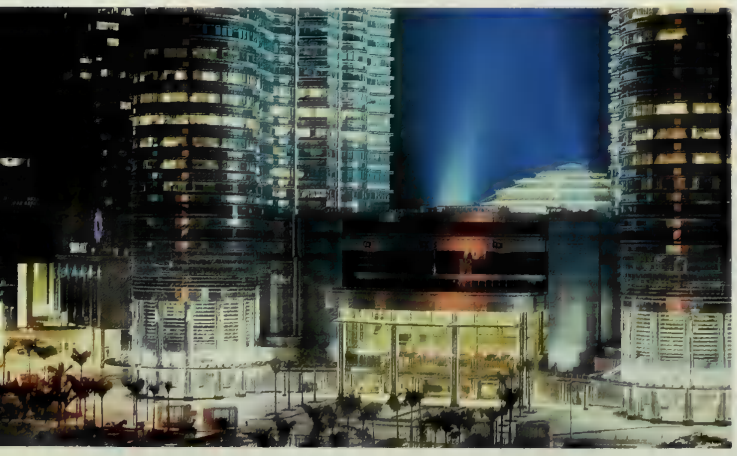
While floor plates are not huge by U.S. standards, they are comparable to what is available in office buildings in Kuala Lumpur, states Ng. By attaching 43-story buildings called "bustles" to the taller towers, the architects created lower floors with 28,000 gross square feet. Midlevel floors have 22,000 square feet and upper ones 18,000 square feet. According to Ng, the building's core occupies an average of about 23 percent of the total space on each floor. Although high-rises such as the World Trade Center in New York have cores that occupy as little as 15 percent of the total, demand for very large office floors is less in Kuala Lumpur.

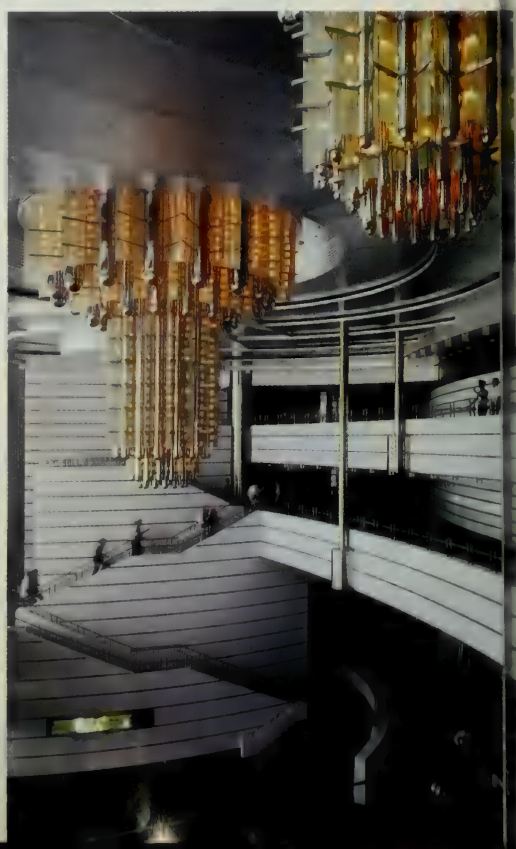
Vertical transportation, needless to say, is a critical issue in the world's tallest buildings. To accommodate the large number of people using the buildings, all elevators are double-deckers. A skylobby at the 41st floor is a transfer point from low-rise elevators to those going to the



The Petronas Concert Hall (center in photo below) is part of the developers' attempt to open KLCC to the public. A plaza in front of the concert hall and a 50-acre park are other parts of this plan.







In the Petronas Concert Hall (top and above) the stage can rise and the acoustical panels can be adjusted to accommodate different kinds of performances. Two grand stairs (right) lead from the ground floor to the concert hall. A six-story retail center (opposite left), designed by the Walker Group CNI, has a central atrium with a Pelli-designed dome (opposite right) that allows sunlight to enter between metal panels.





upper floors, as well as access to the skybridge linking the two towers. The skylobby also serves a four-level conference center, executive dining facilities, and a Muslim prayer room.

The buildings' geometry and pinnacles may have been inspired by Islamic motifs, but their skin is purely modern. The curtain wall is composed of unitized panels of ⅛-inch linen-finish stainless steel and ⅞-inch laminated glass. "The linen-finish steel captures sunlight and diffuses it," explains Ng. Projecting from the curtain wall are stainless-steel sunshades whose teardrop-shaped blades shed water and are self-cleaning. Because Kuala Lumpur is very close to the equator, the sunshades wrap around all sides of the buildings. The combination of linen-finish stainless steel and projecting sunshades gives the towers' skin a rich sense of depth and highlighting, says John Apicella, one of the designers in Pelli's office who worked on the project.

From symphonies to shopping

The Petronas Concert Hall, a 28,000-square-foot structure set between the twin towers, addresses the garden plaza with a curving glass facade that invites the public inside. Designed by Pelli and his associates, the concert hall is reached by two grand staircases from a podium level common to all of the buildings at KLCC. An adjustable stage allows the hall to accommodate a broad range of performances, from a solo pianist to a full symphony orchestra or a Malaysian cultural troupe. Hand-carved Malaysian wood screens set within stainless-steel frames wrap around the interior of the space and hide adjustable sound-absorption panels.

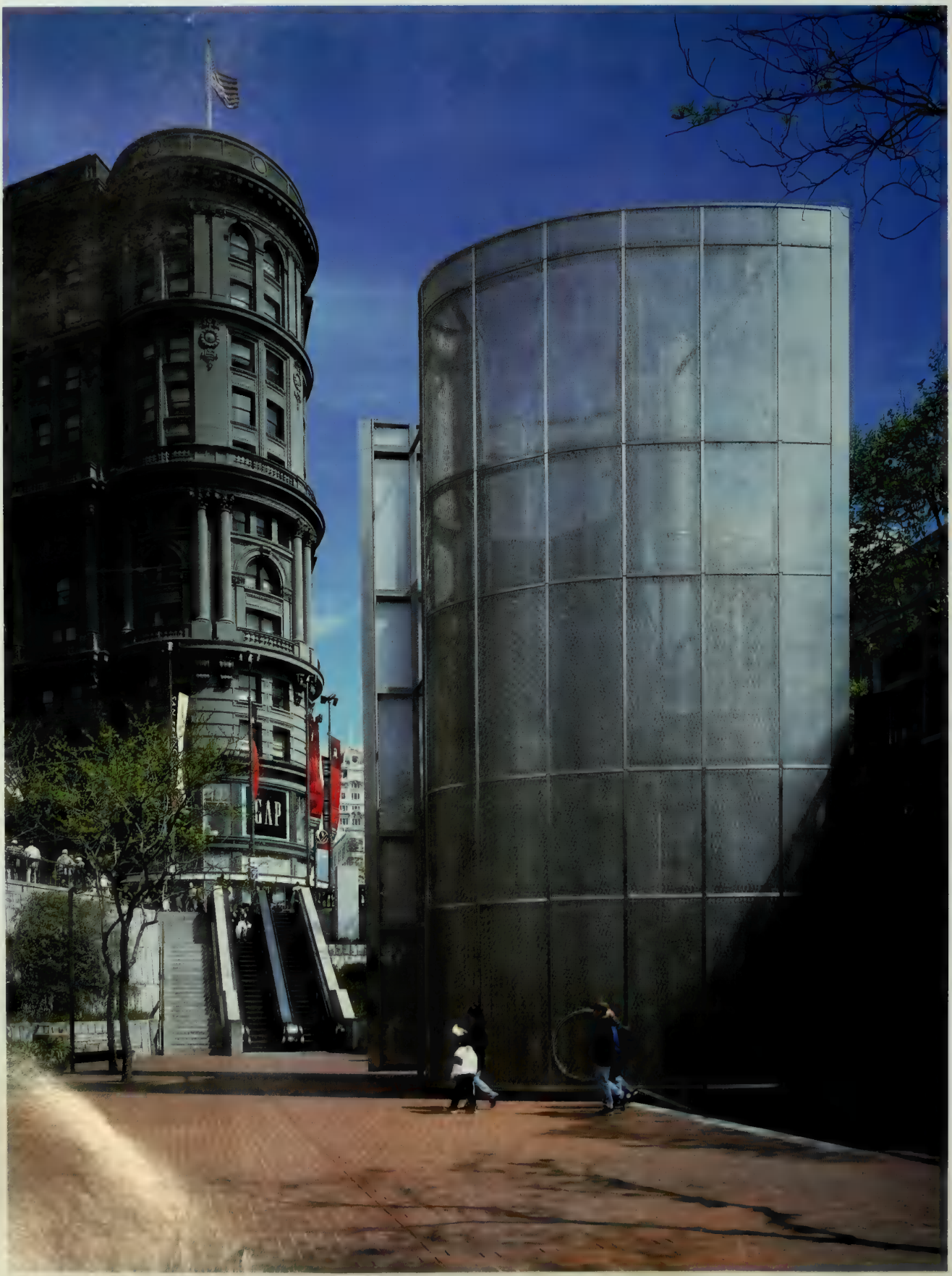
A 1.5 million-square-foot shopping center stretches out behind the Petronas Towers and faces KLCC's public park. Walker Group CNI designed most of the complex, but Pelli designed the central dome, which allows daylight to come into the atrium by way of patterned glass set between spiraling metal petals.

Despite the sorry state of the Malaysian economy, the Petronas Towers are mostly occupied, reports Ng, thanks to its main tenant's global operations and joint ventures. And the public seems to have taken to the project's many outdoor spaces. In the garden plaza, the park, and the covered walkway adjacent to the shopping center, there are usually crowds of people.

"These towers are not monuments but living buildings that play a symbolic role," states Pelli. "We worked hard to make them alive." ■

Architect of Record: *KLCC Berhad Architectural Division*
Associate Architect: *Adamson Associates*
Landscape Designers: *Balmori Associates; NR Associates*
Engineers: *Thornton-Tomasetti Engineers (structural); Ranhill Bersekutu Sdn. Bhd. (structural); Flack + Kurtz (MEP); KTA Tenaga Sdn. Bhd. (MEP); Ove Arup and Partners (site/civil); Arup Jururunding (site/civil)*
Consultants: *STUDIOS (interior designer, office buildings); Walker Group CNI (retail); Howard Brandston & Partners (lighting); Israel Berger & Associates (curtain wall); Shen, Milsom & Wilke (acoustical); Katz Drago Company (vertical transportation)*
General Contractors: *Tower 1: Mayjus (Malaysia Japan US) Joint Venture—MMC Engineering & Construction, Ho Hup Construction, Hazama Corporation/JA Jones Construction, Mitsubishi Corp.*
Tower 2: SKJ Joint Venture—Samsung Engineering & Construction, Kuk Dong Engineering & Construction, Syarikat Jasatera Sdn. Bhd.

Sources
Curtain wall: *Designed by Harmon Ltd., fabricated by Lucksoon Metal Works*
Laminated vision glass: *Malaysian Sheet Glass & Spandrel; DuPont*
Ceramic-frit glass: *Viracon*
Glass doors: *PPG Industries (Herculite)*
Double-deck elevators: *Pernas Otis*
Fiber-optic concert hall lighting: *Starfire*



PHOTOGRAPHY: © TIMOTHY HURSLEY

PORTFOLIO Five small-scale projects challenge the character of their surroundings, showing how welcome an intrusion can be.



The view of the elevator in Hallidie Plaza to the southeast (left), the north (below), and the northeast, toward the Powell Street cable car turnaround (opposite).

A SLEEK OUTDOOR ELEVATOR SHAFT RISES FROM A BRUTALIST BASE

A sculptural elevator shaft has recently sprouted from San Francisco's sunken Hallidie Plaza. The result of an ADA-related lawsuit, it shuttles between busy Market Street and the San Francisco Convention and Visitors Bureau's information center below street level.

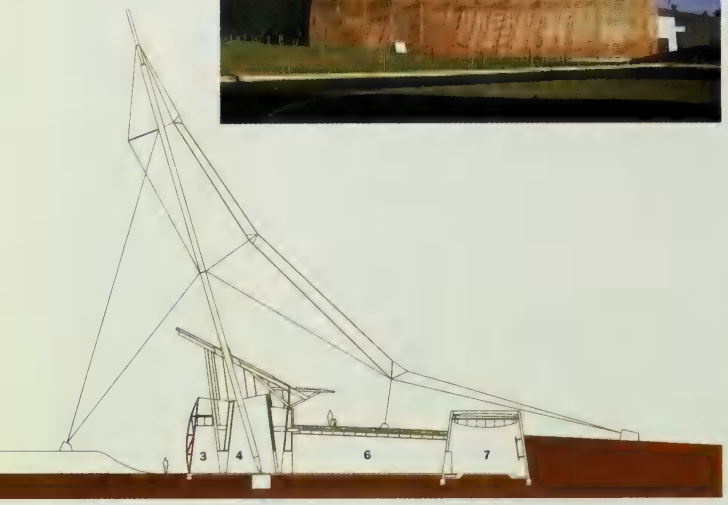
Only half of the project's budget was for machinery; the rest was for design elements that would save this site near the famous Powell Street cable car turnaround—one of the city's most visited spots—from an ugly intrusion.

Two stainless-steel wings enfold the elevator shaft, providing a material and formal counterpoint to the Brutalist granite and brick plaza. The sheathing is perforated—it is 22 percent transparent—varying the effects of daylight. Sometimes the shaft and the wings' ribs are partially visible through the steel, sometimes they are obscured. When the wings overlap, the surface produces a moiré pattern. *David Simon Morton*

Project: *Hallidie Plaza Elevator, San Francisco*
Owner: *City and County of San Francisco*
Architect: *Michael Willis and Associates—Michael E. Willis, FAIA, principal-in-charge; Charles B. Leoni, AIA, project architect; Domingo Cuevas, project designer*
Structural engineer: *SOHA Engineers*

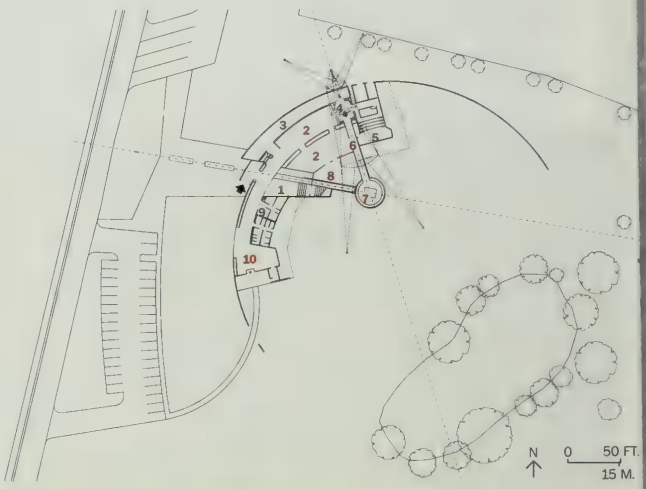


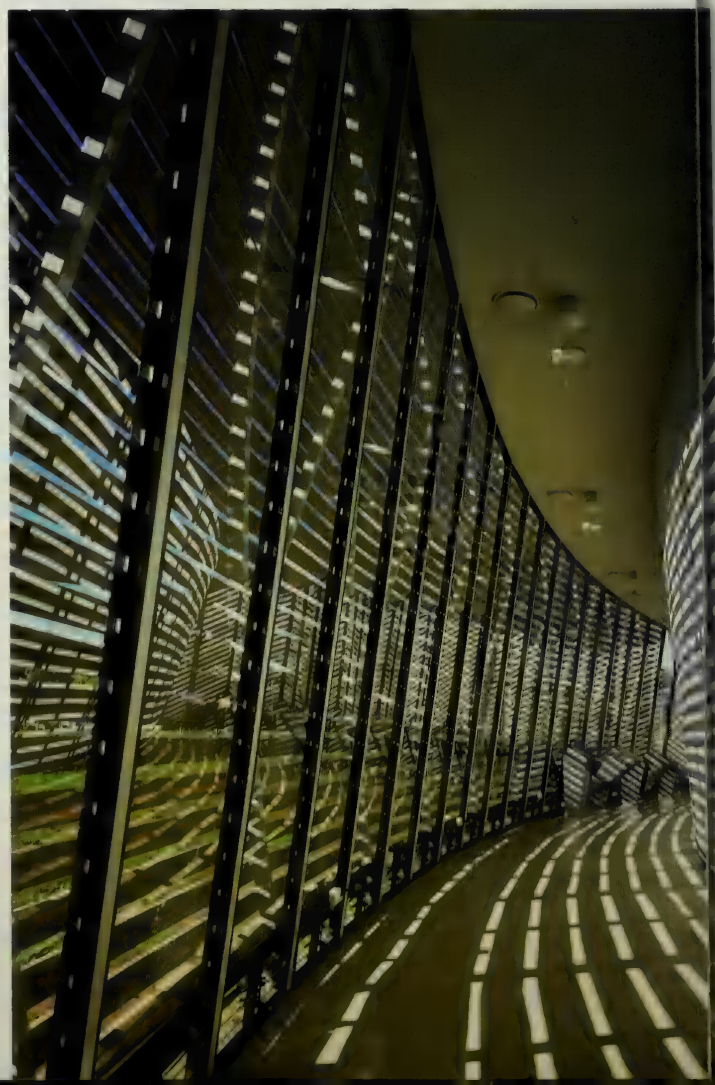




SECTION

1. *Foyer*
2. *Gallery*
3. *Hall of Debate*
4. *Genealogy Tower*
5. *Theater*
6. *Approach*
7. *Contemplation space*
8. *Courtyard*
9. *Offices*
10. *Café*





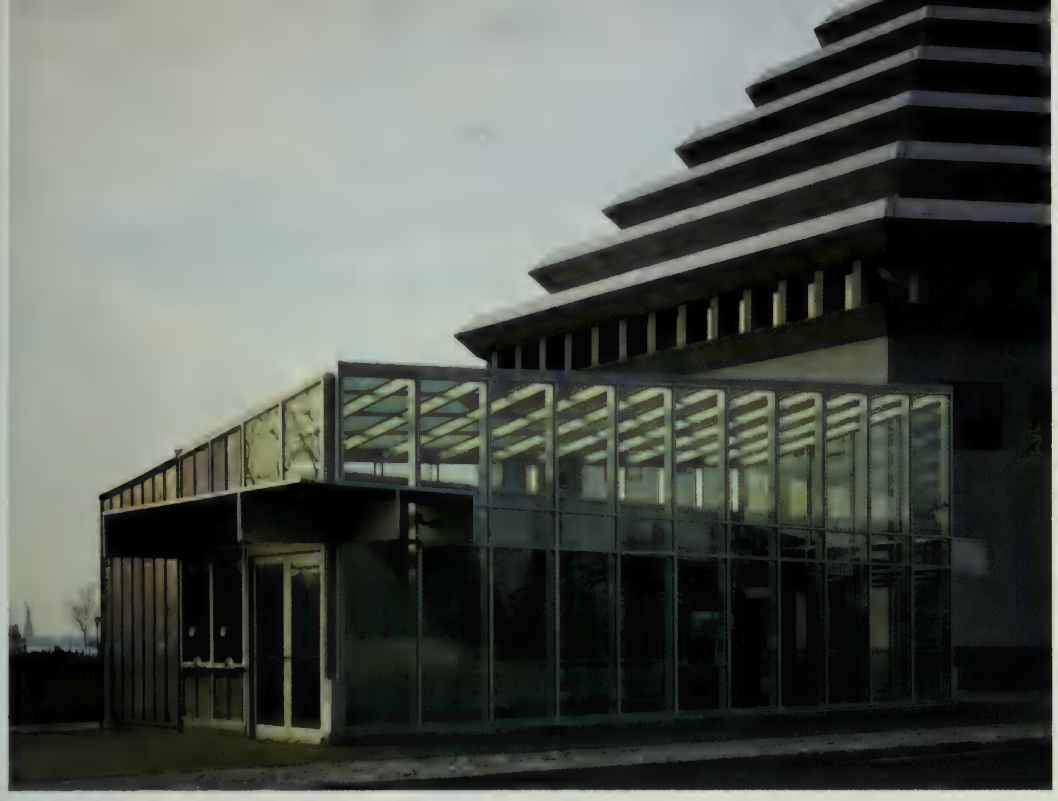
A VISITORS' CENTER MEMORIALIZES AUSTRALIA'S MARTYRED GOLD MINERS

In 1854, Australian gold miners in the Ballarat goldfields lifted the standard of the Southern Cross above their armed stockade in defiance of the British Crown. Imperial troops rushed the stockade in the night, killing 35 men. The event marked the beginning of resistance to British rule and of Australian democracy; it is still a potent political symbol today.

[illegible]0,000-square-foot visitors' cent[illegible]ly erected on the site of the lo[illegible]oyed Eureka Stockade en[illegible] this symbolic power. The bu[illegible]micircular in plan, a gesture [illegible]ratic inclusion. The facad[illegible] hardwood timbers--emb[illegible]atic of the original stockade--cast a shadowed grid over the Hall of Debate (right). The walls of this gallery and other interior spaces cant inward to evoke the claustrophobic experience of the mines.

Out of respect for sacred ground, the building is mostly hidden in a hill. Outside and above, trusses spaced along an angled, 160-foot-long mast keep an enormous flag of the Southern Cross forever unfurled. *D.S.M.*

Project: *Eureka Stockade Interpretive Centre, Ballarat, Victoria, Australia*
Owner: *City of Ballarat*
Architect: *Cox Sanderson Ness—John Sanderson, project director; Patrick Ness, design director; Daniel Haskell, project architect*
Mast engineers: *Spacetech with Arup*



The jewel-like security pavilion captures as much attention as its massive neighbor, Kevin Roche's Museum of Jewish Heritage.

1. *Public passage*
2. *Parcel storage*
3. *Ticketing*
4. *Information*

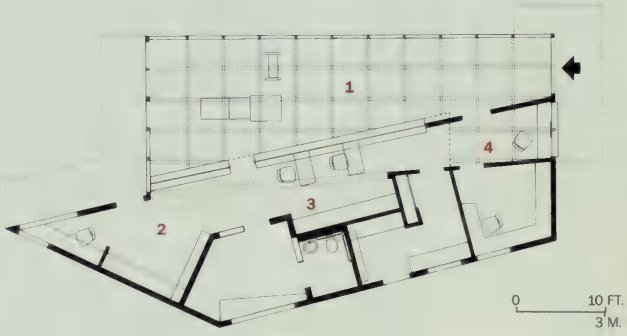
A MUSEUM'S SECURITY CENTER IS REALIZED IN NO TIME AND IN NO SPACE

As the date neared for the opening of New York City's Museum of Jewish Heritage, acts of global terrorism convinced museum officials that security and ticketing should be kept outside the main building. Claire Weisz Architect + Mark Yoes, who had designed a tiny security booth nearby, were given six weeks to design and oversee construction of a small pavilion that would house these functions.

Stringent programmatic demands in a limited space made creating a satisfying design as daunting a prospect as beating the clock. The completed pavilion squeezes ticketing, metal detectors, a baggage check, offices, a staff lounge, and a restroom into 1,300 square feet. Two trapezoidal boxes pivot from the pavilion's east side. The northern box, aluminum-framed and triple-glazed with low-e glass, is a public atrium, where visitors enter and pass through the metal detectors. The southern box is steel-studded and sheathed in lead-coated copper, hiding security-oriented spaces.

The architects wanted the small structure to be a memorable sight in Battery Park City, though the competition is stiff—the World Trade and World Financial Centers crowd the north, Lady Liberty controls the southern view, and Kevin Roche's compact yet massive museum stands a few yards away. Unlike its neighbors, the pavilion doesn't project a single image to impress the viewer. With so many faces, it is like a jewel imperfectly cut, its form changing as one circles around it. The absence of horizontal roof lines—every exterior face is a trapezoid—confuses perspective. Among buildings with more simple geometries, the pavilion emerges as a delightful visual puzzle. *D.S.M.*

Project: *Visitors Center, Museum of Jewish Heritage, New York City*
Owner: *Museum of Jewish Heritage*
Architect: *Claire Weisz Architect + Mark Yoes*

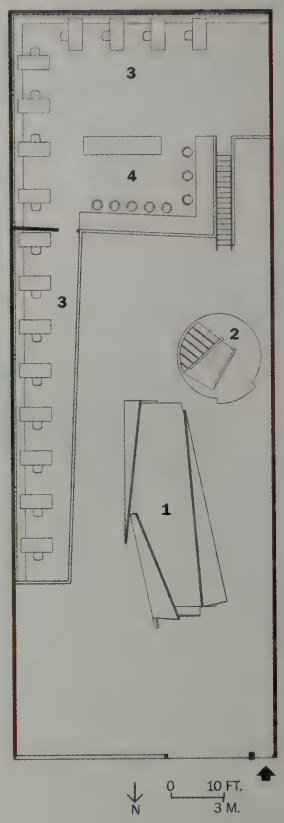




Behind the studio's industrial facade (right) are creative spaces enclosed in custom-made envelopes (below and bottom).







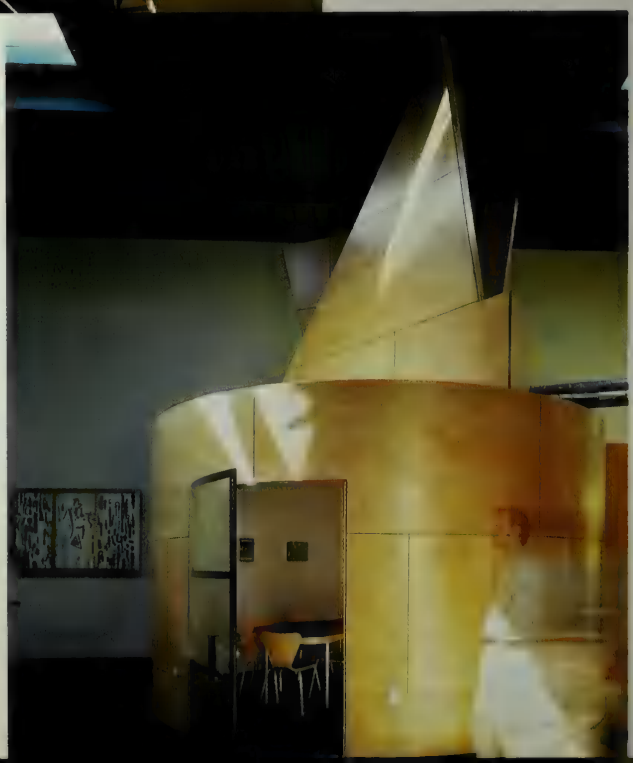
1. *"Flame" rooms*
2. *Conference room*
3. *Animation*
4. *Production*

EXPLODING OFFICES ANIMATE A CONVERTED WATER HEATER FACTORY

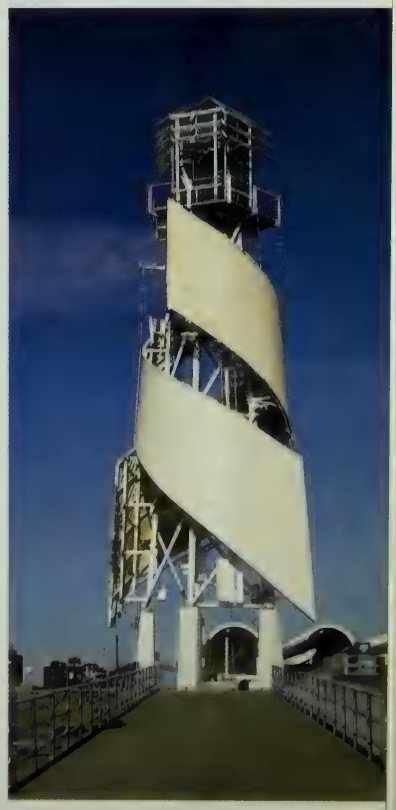
Many of the corrugated steel–clad industrial buildings of Bergamot Station in Santa Monica, California, have been adapted to less muscular uses. Forty-five art galleries have moved in, along with the Santa Monica Museum of Art, Pugh + Scarpa's architecture studio, and, most recently, the Click 3x animation studio, which occupies a 6,500-square-foot, double-height space that was formerly a water heater factory.

Pugh + Scarpa designed the studio and furnishings for Click 3x, inserting a 2,500-square-foot open-plan mezzanine over a group of enclosed offices on the main floor. Two partially enclosed, free-standing workspaces interrupt the rest of the main floor. One is a cylindrical steel-framed, birch-paneled conference room. The other houses two "flame" rooms, where animators work on footage with clients. The pavilion's destabilized forms, fabricated in yellow laminate and birch veneer, fix attention on these rooms, which are the heart of the studio's operations. *D.S.M.*

Project: *Click 3x LA, Santa Monica, California*
Owner: *Click 3x*
Architect: *Pugh + Scarpa—Lawrence Scarpa, principal-in-charge*







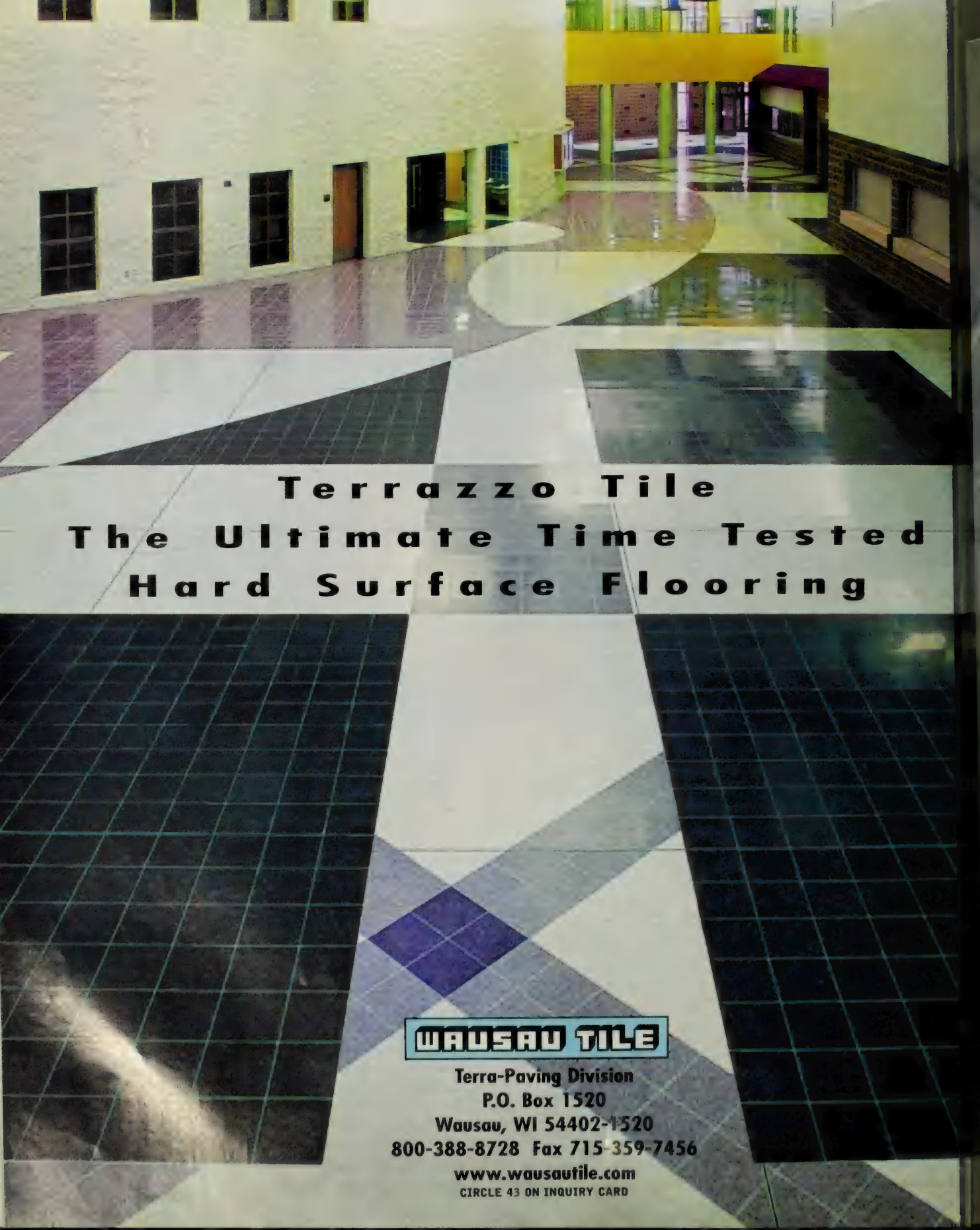
AN INLAND LIGHTHOUSE SERVES AS AN URBAN MARKER

Atlantic City, New Jersey, has a new lighthouse, though it is too far from shore to signal ships. Rising above a newly landscaped inland park, the ceremonial structure marks the main approach to the Boardwalk and the city's casinos for those exiting the expressway.

During the day, light passes through the 90-foot-high steel skeleton, recording its structure in shadow on Teflon-coated sails. At night, the lantern beams brightly and color-filtered lights in the surrounding park are trained on the lighthouse.

An abstracted staircase within the structure is a tipping vortex that excites both fear and fantasy. Below, at the lighthouse's base, five concrete piers frame views of the city. *D.S.M.*

Project: *From the Lighthouse, Atlantic City, New Jersey*
Owner: *Casino Reinvestment Development Authority*
Architect: *Ford Farewell Mills and Gatsch, Architects—Michael Farewell, AIA, designer; Michael R. Schnoering, AIA, project manager; Nicholas P. Cusano, AIA, project architect*
Structural engineer: *Harrison-Hamnett, PC—John N. Harrison, PE*



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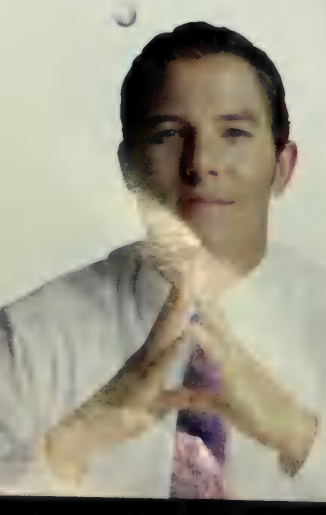
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Houses as Products

FOUR NEW SUBURBAN-STYLE COMMUNITIES PROVE THAT MERCHANT-BUILDER HOUSING CAN SELL QUICKLY AND BE WELL-DESIGNED AND INNOVATIVE.

by Mitchell Rouda



1

Woodside

Contemporary production housing is certainly not the norm in Bellevue, Tennessee, but the architect/developer makes it work.



2

Prairie Crossing

In this conservation-minded community, three architecture firms created vernacular houses appropriate to the Midwestern setting.



3

East Water Place

A townhouse development in Chicago strives to give urban dwellers a suburban lifestyle, with one- or two-car garages, lawns, and private entrances.



4

Harbor Town

Architects Looney, Ricks, Kiss designed close to 65 percent of the houses in Harbor Town, a planned neotraditional community in Memphis, Tennessee.

In Japan there is a saying: "The nail that sticks up gets banged down." These are words of great significance to the architects who design most of America's new homes. Production houses, subdivision houses, spec houses, merchant-builder houses—no matter what they're called, developer-built houses are a product, sold on the open market just like cars and shoes. And like other products, the design of speculative housing is a function of marketing. Design mistakes are perilous, and risk must always be managed.

Though no reliable or controlled statistical analysis has been done on how well innovative projects fare, ask any homebuilder, or any architect who specializes in providing plans to homebuilders, and you'll be told that the bigger the chances taken in the design of a production house, the more likely it is to fail. "Buyers are sheep," is what homebuilders say, and they may be right. But when new homes sell more slowly than the required pace (usually two to four units per month), or when neighboring projects outsell yours, word spreads among the public that "This is not a good deal," and the project spirals downward. The homebuilding company may well lose control of the project to an even more conservative entity than their buyers: the bank.

Violent business forces provide good reason for architects and homebuilders to be so cautious. Years pass between the time when commercial homebuilders work with architects to plan and design housing projects and when they begin to actually sell houses and make money. Big dollars, usually belonging to someone other than the homebuilders, are staked on the speculation. Financial scrutiny and design review by both banks and equity investors are a given. Competition is always fierce, with hundreds of builders vying for the business. Some of them lose. The nail that sticks up hurts badly when it's banged down.

With the goal being sales per month, not commodity and delight, it's no wonder that so many homebuilders are "listening to the market," a euphemism for copying the work of others that has already sold briskly, recently, and nearby. Worse yet, what the market tells them to copy isn't always pretty. The market that builders pay so much attention to repeatedly reminds them of something few architects like to hear:

Mitchell Rouda, the former editor in chief of Builder, *was chief operating officer for Trophy Homes, a merchant builder in Orem, Utah, and Las Vegas. A graduate of Carnegie-Mellon University's School of Architecture, he is now president of HomeTouch, a company specializing in computer-assisted new-home sales.*



Located in Yountville, California, Washington Park features "mature oaks and drives characteristic of historic country lanes," according to the sales brochures.

SITE PLAN

low-dollars-per-square-foot and big backyards will almost always outsell creative and innovative design.

This is architecture?

Product? Dollars per square foot? Outsell? Listening to the market? As an architect, you either understand it or you don't, and either way it's still frightening. After all, what's this got to do with architecture?

Take, for example, garage doors. No one in the design profession particularly likes the way they look on the front of the house. But they are ubiquitous and buyers like them. In parts of the country where houses have no basements, the garage is used for storage. Twenty homebuyers in Las Vegas, all of whom demanded a three-car garage, were asked what they planned to do inside those three bays. None of them had three cars. In each case at least one bay was to be used as a workshop, a hobby center, or a storage area for everything from out-of-season clothing to Christmas decorations. It was suggested to them that the third bay could be recessed behind one of the others so that only two of the gaping doors faced the street. "Oh no," was the resounding reply, "we are ready to move up to a three-car house." In other words, the three doors on the front of the house have become a status symbol. Sales facts are sales facts, and nails get banged down.

Still, substantial innovations and dramatic improvements to housing product happen daily. In fact, the whole idea of "new" is what drives the home-building business; the competition builders face from each other is minor compared to what they face from "used" homes. "Different" and "better" are the keys to a project's success. So it is the architects who possess the almost mystical potential to create the golden egg, the perfect blend of new and traditional, different and safe. Most homebuilders highly value their architects; the successful ones charge builders roughly $20,000 per floor plan. And the cult of the architect is alive and well—one who has had a lot of recent "home runs" can now demand $50,000 per plan.

In the last few years, there have been better than 1.5 million new homes built annually; and more than 80 percent of these were single-family detached (sfd). Of the 1.1 million sfd units built in 1997, developers sold about three-quarters to consumers. In other words, they were

GROWING UP AMONG SPEC HOUSES

When I was young, my parents used to drag me out on Sundays to the farthest reaches of Long Island, where my mother's sister had a brand new home—with a cathedral ceiling—purchased for 11,000. I hated that trip, not only because of the long car ride, but because the cousins at the other end were girls.



at his cousin's home on Long Island in 1960.

But one day the trip got interesting. We stopped off at the sales office of a builder on the way and toured three model homes, each with royal names. They were called "The Windsor," "The Rockingham," and "The Devonshire," and the whole place had some kind of name like Castle of England Estates. I couldn't imagine how much money you would need to live there. (As an adult I realize that these were actually cheap houses.)

Each house had a private bath adjoining the master bedroom. All had family rooms—hang-out rooms just for kids and TVs. Those of us who lived in the older suburbs had never seen such things before.

I may have been too young to judge the brocades and wallpapers, but some of the decorating made a lasting impression. I still remember that the kids' rooms had cartoon characters painted on every wall, and one even had a basketball hoop by the closet door. Figuring that those features were standard, I decided we should move in.

We never did, but each time we made that trip I insisted on stopping at the model homes of one builder or another—an easy task since in those days they littered the road at every exit of the Long Island Expressway. Soon I was collecting brochures, and not long after that I began to draw my own floor plans. And thus, at the age of nine, it became an established fact in my family that I would grow up to be an architect.

Years later, during architecture school, I was surprised to discover that any architect who was worth anything would never dream of designing a "tract" home. The true architects were those who struggled and limited themselves to custom homes. Those who made money on something as mundane as production housing were considered by fellow students to be at the bottom of the professional heap.

Twenty years of business experience has crystallized my frustration at this stereotype and at the scope of work to which the profession, aided by the universities and journals that support it, has limited itself. *M.R.*

designed up-front for sale on the open market. The on-owner's-lot segment, for the most part, used stock plans, purchased from plan books or magazines. Of the tiny fraction that is left, another tiny fraction, the homes of those who can afford it, are true custom-designed homes. These are what most architects think of when they imagine designing a house: houses with music rooms and copper roofs and ocean views.

These statistics make it fairly obvious that the nearly one million developer-built new homes are not a freaky sideshow to the making of architecture but one of its main events. What other building type so profoundly affects the character of our landscape? These homes define the patterns of our suburban and exurban growth, create permanent and rigid social structures, and set stylistic tones that, for most people, are their most intimate experience with architecture.

Among these homes there are what we call "good" ones and "bad" ones—homes that are environmentally responsible and those that waste materials, energy, and land; homes that are proportionate and balanced and those that are jumbled and gaudy; homes that are pretty and those that are not. There are some spec houses in the bunch that are truly well designed, some that are disastrous, and many in between. Yet most architects look askance at the whole body of work, at the entire spec house field. In doing so, they abdicate participation in shaping the largest single piece of the built environment—an environment that they otherwise profess to be involved in improving. (Add strip shopping centers to this stunning abdication. The profession's best talents won't get involved with them either.)

DEVELOPER-BUILT HOMES ARE NOT A FREAKY SIDESHOW TO THE MAKING OF ARCHITECTURE BUT ONE OF ITS MAIN EVENTS.

Houses as products

The first time I heard a house described as a "product" was the day I left the world of architects and entered the world of builders. I winced. But I have since found out how market-oriented developer-built housing is. Just like on the supermarket shelf, the package, often much more than the taste of what's inside, influences the willingness of a shopper to select the product. In Salt Lake City, for example, a local dairy recently redesigned the containers for its milk products. The new package, called a "Chug," is a plastic bottle similar to soft-drink containers. The result has been a 300 percent increase in sales of chocolate milk. These same dynamics affect housing too.

It is typically the vice president of sales and marketing at a homebuilding company who is the primary client contact for the architect. That vice president, if he or she is any good, will tote into initial programming meetings stacks of data based on recent sales, consumer research, and interview results with potential customers. This research might demand anything from bigger closets to more chartreuse and less red. During these meetings, the builders and the architect also typically review competitive floor plans, organized in order according to sales rate—the most successful first and the least successful last—looking for patterns and lessons. The idea is that the architect will follow these patterns carefully in crafting new plans.

The results of this approach are a little unpredictable. For example, it's doubtful that many Americans think much from day to day about the view through their house from the front door. Yet houses with a great entry view sell faster, perhaps because good first impressions help build buyer preference. And so "dramatic entry impact" is a major programmatic requirement of most builder housing. So are "memory points"—niches, specialty windows, a cute corner desk, a cartoon character on the bedroom wall, anything that sticks in the buyer's mind. Most home-shoppers will walk through five to 15 model homes on a typical Sunday afternoon. What they remember from that mass of product offerings matters.

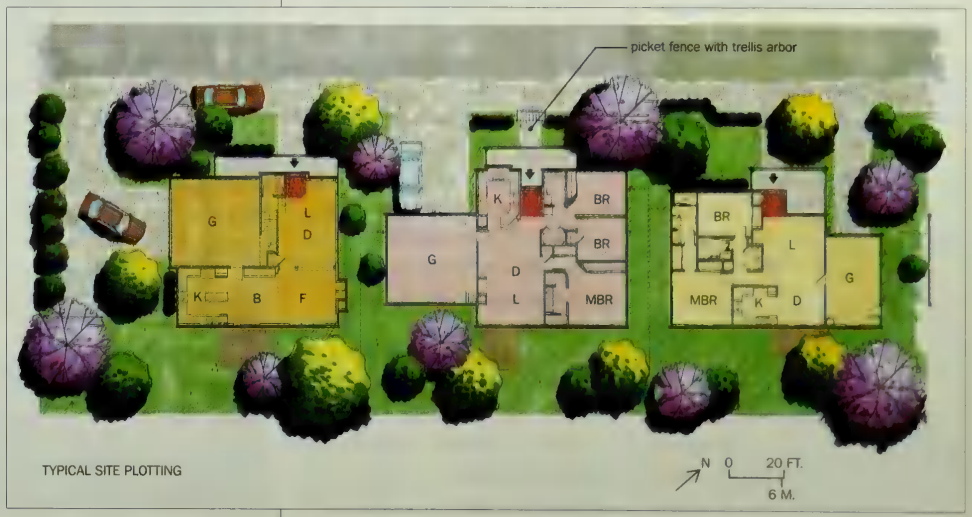
So when an architect says that he or she has a new idea, the response will always be "Great, show me some market research to prove it will work." Of course, whatever innovation an architect might come up with is more likely to take hold if it can be explained very quickly to the home-shopper during a short conversation with the sales agent. The shopper must also respond to that new idea by choosing the home above all others, as one might choose one cereal box over another from a crowded supermarket shelf. And that new idea must be reasonably priced. Most builder clients want nothing more than that brave new idea that can lead to product differentiation and broad market acceptance.

It's not fair, you think. The market doesn't always know what's best. Why must nails get banged down?

It might be easier for architects if they stay out of this game altogether. But if they do, then housing as a whole won't improve. Unless architects embrace the business realities of the homebuilding business and take on the challenge of using design to increase sales, the people who manage the large and risk-prone investment in homebuilding won't allow architects to influence the look and feel of the "product."

Just like other architects

Though most are ignored by the mainstream profession, there are architects who pay the price to play this game—and therefore influence homebuilders' *(continued on page 176)*

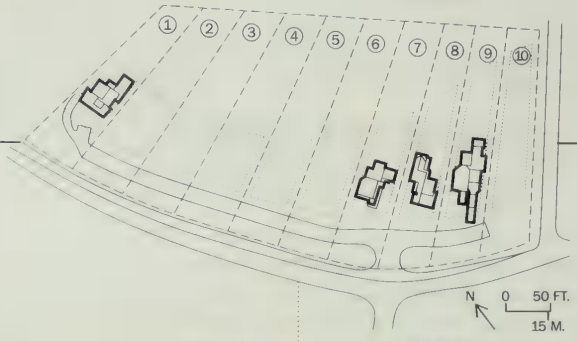


TYPICAL SITE PLOTTING

Picket fences, trellises, arbors, and other suburban features are standard fare at Washington Park.

1 Woodside Bellevue, Tennessee

PUTTING CONTEMPORARY HOMES IN THE MIDST OF A STRONGLY TRADITIONAL SUBURBAN AREA IS A GAMBLE.



SITE PLAN

by Christine Kreyling

Project: *Woodside, Bellevue, Tennessee*
Architect: *Artech Inc.—Moshen Malakouti, AIA, partner-in-charge; John Abernathy, AIA, Gaetano Fabris, Ni Li, Don Burke, design team; Mark Blumberg, models*
Engineers: *Steve Bridges (surveyor); Global Electric (electrical)*
Consultants: *Tony Ashburn (mechanical)*
Contractor: *Artech Inc.—Karl Dupre, project manager; Alan Ghavami, Jim Remagen, superintendents*
Land development cost: *$375,000*
Cost per square foot: *$60–$70*

Bellevue, Tennessee, 10 miles southwest of Nashville, is a collection of subdivisions with names like Willow Pointe, Magnolia Place, Devon Close, and Aspen Heights. The houses range from 1960s split-levels with brick veneer, shutters, and the occasional vinyl Tuscan column, to the more recent generic cluster homes, with pseudo-Palladian windows and coach lamps suspended over the garage doors. In short, there is nothing architecturally striking in Bellevue—except Woodside.

This development-in-progress will ultimately include 10 houses tucked into the side of a wooded slope along a cul-de-sac. But the boldly contemporary lines of the three houses that have already been built make it clear that Woodside is not business as usual in Bellevue.

"We wanted to do something a little different, but not so different as to scare people off. After all, this is speculative building," says designer and developer Moshen Malakouti, AIA. The exteriors of the three basic models contrast cypress lap siding with stained board and batten. Grids of square windows signal the main living spaces, while large eaves brackets translate the vocabulary of the bungalow to a modern idiom. The foundation blocks are laid in courses of three rough to one smooth, adding textural interest. "The rustic setting justifies the raw look of the materials," Malakouti says. Some of the houses have towers to take advantage of the wooded views, and all models have a porch or a sundeck.



Malakouti's company, Artech, was founded in 1991 to offer residential clients a design-build option. "Usually the contractor sees finished plans, and then he has to negotiate back and forth between the architect and the client. Serving as architect and contractor cuts down on the design and build time," he says. Artech's seven-person staff includes full-time project managers and field supervisors who oversee a rotating crew of subcontractors.

Most of Artech's work is the design and construction of traditional homes situated in Nashville's gated communities, many of which have covenants that do not permit styles more recent than the 19th century. While Malakouti is comfortable with traditional elements, he prefers to go modern. His intention at Woodside is to make contemporary design available in an area where anything other than Colonials and Cape Cods must be custom-designed. The homes in the subdivision range from 2,500 to 3,000

Christine Kreyling is a freelance writer and the architecture and design critic for the Nashville Scene.



Not the average Tennessee subdivision, Woodside has 10 lots and four basic home designs, which can be customized. Leaving the existing trees made construction more difficult and more costly. "Excavation subcontractors didn't like it," the architect says, but it helped give the houses, which are on narrow lots, greater privacy and a more established feel.



FIRST FLOOR: LOT 7



SECOND FLOOR: LOT 7



square feet and cost $250,000 to $275,000, which is competitive with others in the area.

Securing financial backing for the project, Artech's first as a developer, was not easy. "I've worked in Nashville, either as a builder or designer, for 17 years," Malakouti says. "I knew that some buyers would appreciate a more modern approach. And I wanted to be the first one in the area to reach these buyers." But being the first has disadvantages. Bankers were reluctant to gamble on Malakouti's niche market: young professionals willing to make the break from traditional suburban boxes. The company was required to submit models of each of the houses as well as comparative price studies.

Artech paid careful attention to the sloping topography, retaining view corridors to the surrounding hills. Knowing its buyers would be more ecologically minded than most, the company also tiptoed around existing trees during construction. Narrow lots (50 to 60 feet) necessitated designs that create privacy. Window placements are carefully considered, as is siting and landscaping. The floor plans of the three existing houses include a living room/great room, a separate dining room, a kitchen with a breakfast area, three bedrooms, two-and-a-half baths, a two-car garage, and bonus space that can serve as an office or study. Public spaces are delineated by a shift in floor or ceiling level rather than actual walls. High-traffic areas are in free-flowing spaces, not separate hallways.

Artech is willing to customize the interiors to fit the needs of its buyers—an increasingly common practice in high-end developments. Jack and Rhonda Smart, Nashville natives who purchased one of the three houses already in place, worked with Malakouti to modify the basic floor plan to accommodate the needs of their children. The garage became a playroom for the kids, the bedrooms were expanded, and the bonus space upstairs was used for a homework area. "We got as close to a custom design as we could afford," Rhonda Smart says.

Another couple who bought one of Malakouti's homes, Ralph and Penny Mastrangelo, call themselves "determined modernists." They moved to the area three years ago and spent many of their weekends searching for a contemporary house. "We'd just about given up," Penny Mastrangelo remembers. "Then we found Woodside." ■

Sources

Framing lumber: *Boise Cascade*
Roofing: *Tamko*
Vinyl windows: *Alenco*
Skylights: *Velux*
Doors: *Prendor*
Carpeting: *Karastan-Plesseau*

2 Prairie Crossing Grayslake, Illinois

THREE CHICAGO ARCHITECTS TEAM UP TO CREATE SPECULATIVE HOUSING THAT PRESERVES A SENSE OF PLACE ON THE PRAIRIE

by William Weathersby Jr.

Project: *Prairie Crossing, Grayslake, Illinois*
Client: *Prairie Holdings Corp.*
Architects: *Tigerman McCurry Architects—Margaret McCurry, FAIA, partner-in-charge; Nagle Hartray Danker Kagan McKay Architects Planners—Dirk Danker, AIA, principal-in-charge, James Nagle, FAIA, design principal, William Duke, AIA, project architect; Frederick Phillips & Associates—Rick Phillips, FAIA, design principal*
Engineers: *P&D Technologies (civil)*
Consultants: *William Johnson and Partners, The Lannert Group, Frank Edward Haas, Peter Lindsay Schaudt Landscape Architecture, The Natural Garden and Eco Logic (landscape architects/land planning); Applied Ecological Services (resource management/wetlands); John Callewaert (farm)*
Contractor: *Shaw Homes (1994–97); Sturbridge Construction Corp.*
Land development cost: *$25 million*
Cost per square foot: *$110–$160*

Prairie Crossing, 40 miles north of Chicago, is a community with a mission. First priority is ecological stewardship of the 667 acres of wetlands, prairie, and farmland that make up the site. Preservation of the region's architectural vernacular is second.

The Prairie Crossing site was targeted for high-density development in the late '80s. After a series of court battles, a group of neighbors acquired the site, created a development firm called Prairie Holdings to manage it, and began to make plans for a neotraditional, conservation-oriented community.

Landscape historian Victoria Ranney, a neighbor who has taken a lead role in the project, says Prairie Crossing looks back to Frederick Law Olmsted's Riverside, a successful Chicago suburb built along the Des Plaines River. "We borrowed Olmsted's approach to a project," she says, "which was to figure out the central character of the place, then have all the design details contribute to that main theme."

Three Chicago-area architecture firms—Tigerman McCurry, Nagle Hartray Danker Kagan McKay Architects Planners, and Frederick Phillips & Associates—were gathered to see that these two missions were accomplished. They created a dozen complementary house types that seem as appropriate to the site as the fields of grasses and wildflowers.

There are only 317 home sites on the property. Nearly 60 percent of the total acreage was designated as open space, including a 22-acre lake, 160 acres of prairie, and walking trails. An organic farm wraps the site on three sides and a four-stage natural filtration system handles storm water runoff.

Housing densities vary within the community. The "prairie" sites emulate homesteads and overlook the lake or face out toward the open land, while the "village" sites are small lots near the village green. The latter is one of the most successful parts of the development; the close proximity of the houses creates the ambience of a small town. Garages are at the rear of the houses and front on alleys. That, along with sidewalks and picket fences, allows the streetscape to evoke a historic Midwestern town.

The houses in Prairie Crossing recall the pared-down style of mid-1800s farmhouses. Clapboard siding, broad front porches, steep gables, and great rooms are typical. The houses aim to reinterpret, rather than replicate, the past. "The houses are authentic in terms of vernacular details, while adapting elements of regional architecture to the way we live now," says principal architect James Nagle, FAIA, who devised the concept behind the initial four houses. Concessions to contemporary lifestyles include two-car garages, high ceilings, and high-efficiency windows. Square footages range from 1,150 to 3,400.

The three architecture firms met as a group with the developer for design reviews and each developed four to six final house prototypes. The houses are unified by standardized details, such as



William Weathersby Jr., is a freelance writer specializing in architecture. He is based in Westport, Connecticut.

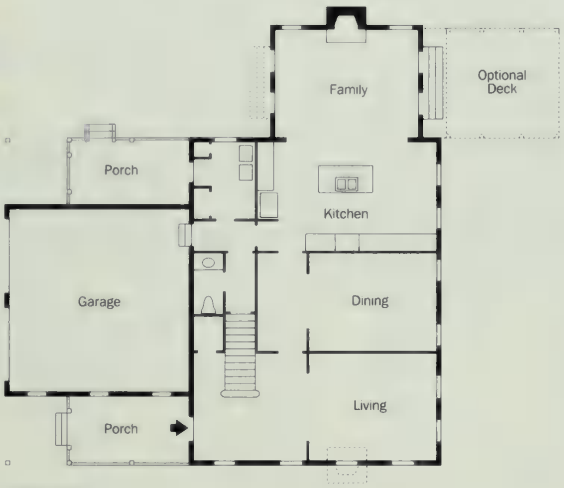


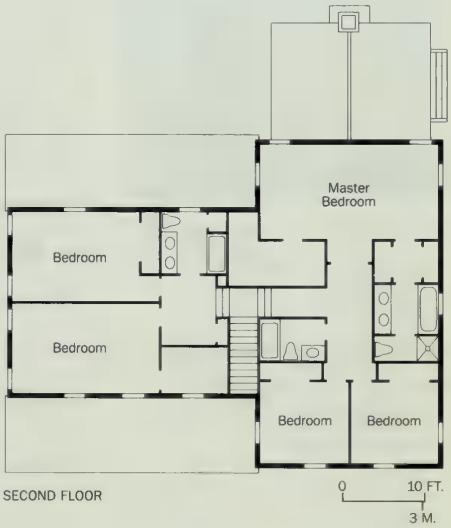
Set on 660 acres of prairie, farmland, and wetlands, Prairie Crossing was slated for high-density development until neighbors purchased the site. It is divided into four categories of housing parcels: "village," "prairie," "field," and "meadow." Lot sizes vary, as do the square footage and price of houses. The three architecture firms involved in the project were guided by an experienced developer, who introduced marketing considerations to the design process.



The Joice: *3,000 square feet. Designed by Tigerman McCurry Architects.*

Although three different firms were involved in designing the houses, using similar details gave all the houses a unified appearance.







The Ogilvie: *2,200 square feet. Designed by Tigerman McCurry Architects.*

Broad front porches, gables, and clapboard siding were included on all the homes to create a mid-1800s Midwestern look.







The Ingalls: *1,140 square feet. Designed by Nagle Hartray Danker Kagan McKay Architects Planners.*

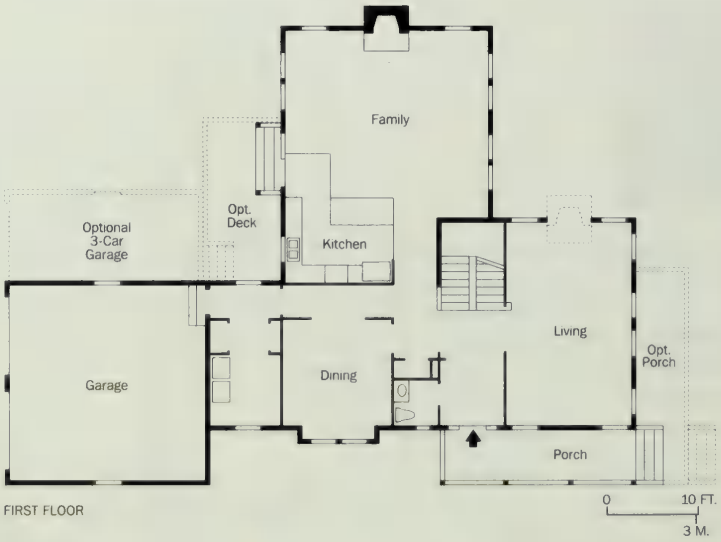
Prairie Crossing has guidelines for the colors houses can be painted and how they can be customized.





The Gage: *2,850 square feet. Designed by Nagle Hartray Danker Kagan McKay Architects Planners.*

Jim Nagle helped define the direction the houses would take at Prairie Crossing when he designed the first series of prototypes.



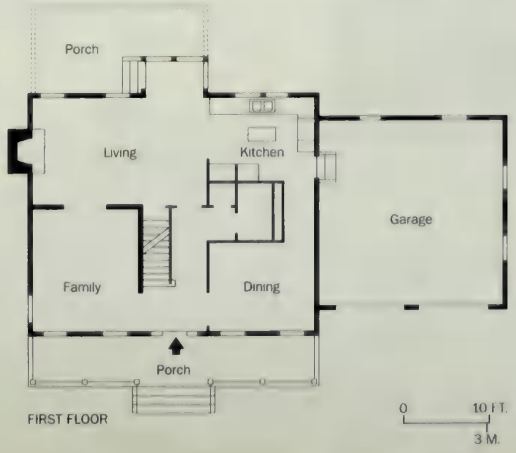




The Jensen: *1,600 square feet (above).* The Lincoln: *2,150 square feet (right).*

Both designed by Frederick Phillips & Associates.

While Tigerman and Curry and Nagle Hartray had some experience in designing single-family construction housing, this was Nick Phillips's first major project. He was inspired not only by Midwestern farmhouses but also by Shaker and Colonial New England styles. All of the architects incorporated plenty of windows to take advantage of views.

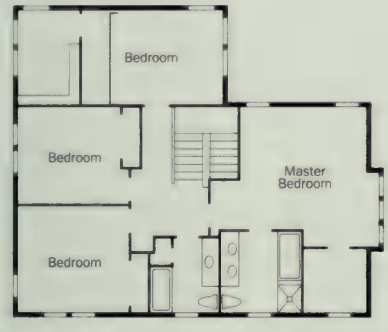


PHOTOGRAPHY: © TERRY EVANS (THIS PAGE, BOTTOM LEFT); ALAN

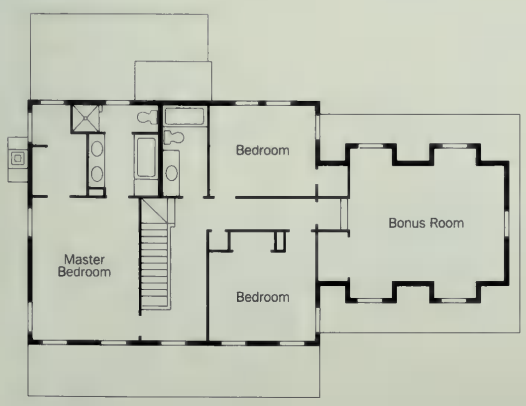




The interiors of model homes are carefully designed—often by merchandisers—to create "memory points," features that prospective buyers will remember after tromping through dozens of other model homes.



SECOND FLOOR



SECOND FLOOR

window muntins, interior trim, and eaves profiles. Some diverge from the farmhouse ethos to embrace more of a Craftsman style, while others include elements from Colonial New England. Rick Phillips, FAIA, reinterpreted the three-quarter houses of Nantucket. "The simple New England box was more efficient than the Midwestern farmhouse," he says. Margaret McCurry, FAIA, was inspired by a variety of historic Midwestern residential forms, from the Sears, Roebuck & Co. four-square to the farmhouses that stood near stagecoach trails.

Shaw Homes, a homebuilder and developer, brought budgetary rigor and an emphasis on marketability to the design process. Balancing these demands with architecture was difficult for the architects. "The spec housing industry is like the automobile industry," Phillips says. "What sells is the laundry list of features. If you can design a house that incorporates everything on the list, no matter how it looks, it will sell."

McCurry agrees: "I encountered philosophies of development that never come up when I design custom houses. There were funny little standards that didn't appear in the design guidelines but would pop up in meetings. The developer would say things like, 'You can't pass the master bedroom on the way to the other bedrooms.'"

A primary mandate was versatile floor plans that could accommodate additional bedrooms, screened porches, and open-plan kitchens. Most of the houses have two optional facade designs.

Reacting to the demands of the market meant occasional feats of architecture. For example, prospective buyers were asking for smaller, less expensive houses with amenities. McCurry designed a four-bedroom house under 2,000 square feet, including a two-car garage. Incorporating one of the garage doors into the facade of the four-square plan kept the house from being overwhelmed by garage doors. "This is a typical way in which we tried to diminish the effect of a developer requirement," she says.

Three strong-minded architects collaborating with a developer brought its own challenges. "We weren't satisfied, and were often disgusted, with what sells," Phillips says. "Ultimately, there was a good dynamic between the architects and the developer. We were able to stretch the developer's way of thinking, and vice versa." ■

Sources
Roofing: *Owens Corning*
Locksets: *Schlage*
Paints and stains: *Sherwin-Williams*
Entry doors: *Pease*
Interior doors: *Weyerhaeuser*
Atrium doors: *Crestline*

3 East Water Place Chicago

NEW TOWNHOUSES GIVE URBAN DWELLERS SUCH SUBURBAN LUXURIES AS GARAGES AND YARDS—ALL WITHIN WALKING DISTANCE OF DOWNTOWN.

by Craig Kellogg

Project: *East Water Place, Chicago*
Owner: *Ogden Partners*
Architect: *Booth Hansen Associates—Laurence Booth, FAIA, design principal; William Ketcham, AIA, project manager; Matthew Petrie, project architect; Kerl LaJeune, Susan Lanyi, design team*
Engineers: *Robert Miller Associates (structural)*
Consultants: *Wolff/Clements Associates (landscape)*
Contractor: *W. B. Olson Inc.*
Cost per square foot: *$80–$85*

"The suburban lifestyle is okay. But you don't have to live it in the suburbs," says Laurence Booth, FAIA, who served as architect and as part of the development team for East Water Place, a speculative townhouse project in Chicago. Urban townhouses, despite their party walls and limited frontage, offer owners such suburban luxuries as a private entrance, a small yard all to themselves, and, that hallmark of life outside city-center, an attached garage.

Booth knows about this approach to urban living firsthand. He raised his own family in a historic townhouse in Chicago's Lincoln Park. "It's the perfect compromise between urban and suburban," he says. He now resides in one of the East Water Place units.

The 2.2 acres of land on which the project sits are owned by the Chicago Dock and Canal Trust, established in 1857 by Chicago's first mayor. The site was leased from the trust for 99 years; each homeowner has a lease agreement with Chicago Dock. The cost of the leases now ranges from $500 to $650 a month and will be adjusted annually according to the Consumer Price Index. Because land costs are not included in the price of the townhouses, East Water Place units seem inexpensive. Prices range from $318,000 to $450,000, depending on the degree of customization. Square footage is from 2,175 to 3,450.

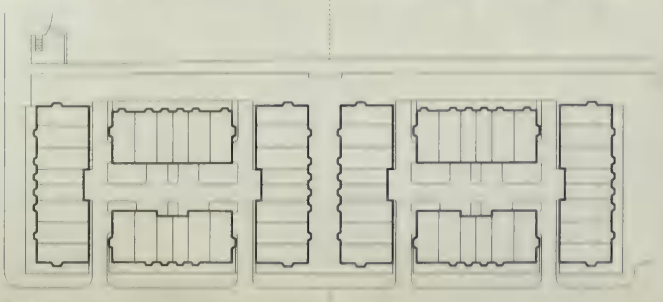
Craig Kellogg is a freelance writer based in New York City.

Bounded to the north by the Ogden Slip waterway, where the Chicago River joins Lake Michigan, and to the east by Lake Shore Drive, the townhouses are in eight buildings arranged along the southern edge of the slip. The land is part of a bigger tract that was slated for high-rise housing and commercial development during the 1980s. That project fell victim to a collapsing real estate market and was never built.

Booth Hansen Associates worked with the trust to plan the townhouses in the early 1990s. Construction began in the fall of 1996. To limit financial risk, only eight of the three-story units were built initially. When these were offered for sale, they proved so popular that construction continued unabated until all 56 units were completed 18 months later.

Through its experience designing and building many townhouse projects, as well as single-family production and custom homes, Booth Hansen has devised ways to build efficiently. At East Water Place the firm used prefabricated painted-steel window bay modules, which are bolted to exterior walls to save time during the framing process. Party walls have a two-inch cement-gypsum board that's ordinarily used to line elevator shafts. "Soundproofing is very important because it provides the kind of privacy that comes with freestanding suburban houses," Booth says.

Experience has also familiarized the architects with the interior configurations people want. "We know everybody lives around the kitchen," Booth says. So kitchens are spacious. And unlike some designers who don't leave an appropriate space for the bed or the couch, Booth Hansen pays



SITE PLAN



close attention to where furniture can be placed. Because many of the townhouses were sold before construction began, owners could customize their homes' interiors. "What's nice about townhouses is there are a lot of ways you can fiddle with the configuration," Booth says, since partition walls are rarely load-bearing.

Every unit at East Water Place has at least a one-car garage, and most accommodate two cars. In both cases, the garage occupies about 40 percent of the ground-floor area. The interiors are arranged so that formal entry doors are at one end of the building and garage doors at the other. "Chicago is an automobile city," Booth says. "People are using their cars all the time. Separating the doors, or directing the garage doors toward an auto court, minimizes their architectural impact, making the front of the project neater and providing a more attractive streetscape."

In addition to the garage, the ground floor includes a small reception hall, a laundry space, a guest bathroom, and a guest bedroom, which many owners use as a home office or gym. The family living areas are on the next level and bedrooms are on the top floor. Winding stairs save space in the tall, narrow units. To take advantage of the views of the Chicago skyline and the water, each unit has a penthouse. These small rooms often serve as entertainment spaces; several owners have run plumbing up to them and installed bar sinks.

Varying the heights of the ceilings gives each floor a different sense of purpose. The ground floor and the penthouse have eight-foot ceilings, the main floor has 11-foot ceilings, and the top floor has 10-foot ceilings. "Conventional wisdom is that an eight-foot ceiling is standard and nine feet is special, but a ceiling of 11 feet is really great," says Booth. "Tall ceilings allow very tall windows so you can see from the ground to the sky."

Serving as architect and developer and then moving into the complex gave Booth a special commitment to East Water Place. "People have asked, 'Don't you feel this was a conflict of interest?' I don't think so. It's just a matter of treating your money like you would treat other people's money," he says. Having the architect become part of the economic equation is not a bad thing. "I sat at the table, and I had a vote. But I also took a greater risk. And in this case, it paid off." ■

Sources
Masonry: *Endicott Clay Products*
Wood windows: *EVCO*
Concrete reliefs: *MaTerre International*



High-rise housing and commercial projects were slated for the site of East Water Place in the 1980s, but plans were scrapped when the economy bottomed out. Since East Water Place has proven so successful, one of the high-rises has begun construction nearby.



4 Harbor Town Memphis, Tennessee

A NEOTRADITIONAL COMMUNITY, JUST A BRIDGE-SPAN AWAY FROM DOWNTOWN MEMPHIS, IS A MARRIAGE OF ARCHITECTURE AND LAND PLANNING.

by Wendy Moonan

Project: *Harbor Town, Memphis, Tennessee*
Architect: *Looney Ricks Kiss Architects, Inc.—J. Carson Looney, FAIA, principal-in-charge; Brad Shapiro, AIA, Mark Jones, AIA, project architects*
Consultants: *Barbara Earhardt (interior design); Charles N. Sandifer & Associates (landscape); RTKL Baltimore (land planner); Island Properties Associates (developer)*
Land development cost: *$15 million*
Cost per square foot: *$70– $110*

J. Carson Looney, FAIA, possesses the almost mystical ability to create speculative houses that are both well-designed and fast sellers. Looney heads up the residential sector of Memphis, Tennessee–based Looney Ricks Kiss Architects, which has a staff of 140, including 35 licensed architects. The firm has greatly influenced major residential developments throughout the Southeast, as well as in Texas and Rhode Island, by designing houses or by drafting covenants and design plans to guide local builders. The firm also collaborated with several different builders at Disney's Celebration in Florida.

Looney is one of the second generation of New Urbanists, neotraditional city planners and architects who believe in neighborhoods designed for small-town social interactions and a pedestrian-oriented street life. His firm designed about 65 percent of the speculative housing, including single-family and townhouses, in Harbor Town, a 135-acre community in Memphis. With its neat wooden houses, small lots, sidewalks, and curving streets, Harbor Town can look like a set from some idealized television show.

Located on an island in the Mississippi River, just a bridge-span away from downtown Memphis, Harbor Town was a pristine wilderness area until development began in December 1989. The homes were the first single-family detached houses built in Memphis in more than a century.

The developer, Henry Turley Jr., wanted to create a community that was dense but not urban, and with small streets to encourage intermingling. "I wanted to do something new, to add a different element to the city," he says. Turley also wanted something that reminded him of the community he grew up in.

Harbor Town is home to about 2,000 people of varied household types and income levels, from single professionals to young families to empty nesters. Ultimately the town will include a town square where residents can shop. The grocery store is already compieted.

Looney developed Harbor Town's design guidelines, which help create consensus among builders, architects, and homebuyers. The guidelines respond to the climate, environment, history, and culture of the area. He also pioneered several house designs for small lots.

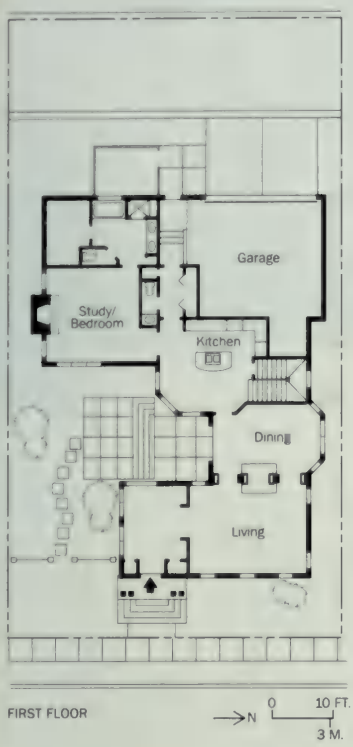
"Harbor Town is the first job where we were able to totally integrate land planning and architecture," he says. "That allowed us to test new housing types." Houses range tremendously in price—from $150,000 to $750,000. The high-end homes, on the western side of the island, offer spectacular views of the Mississippi, while the lower-priced houses are more like cottages.

All of these designs were carefully calibrated to meet the demands of Harbor Town's target markets. "In spec housing, the worst thing that can occur, other



SITE PLAN

Wendy Moonan is the architecture editor of House & Garden *and a frequent contributor to* ARCHITECTURAL RECORD.







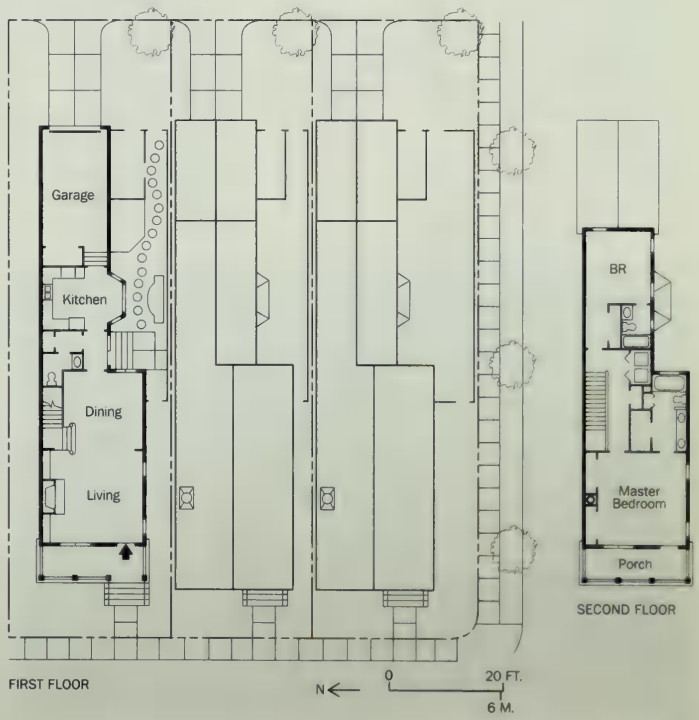
Uhlhorn Vesta Home: *Featured in a Memphis homes tour, this 3,000-square-foot house is on a narrow lot adjacent to one of Harbor Town's community parks.*





Compact, low-maintenance homes like these are ideal for first-time buyers, young professionals, and empty-nesters. They range in size from 2,400 to 3,000 square feet. The connecting side porch extends living space to the outdoors.

Harbor Bend Rowhouses: *These single-family houses were built at a density of seven units per acre.*

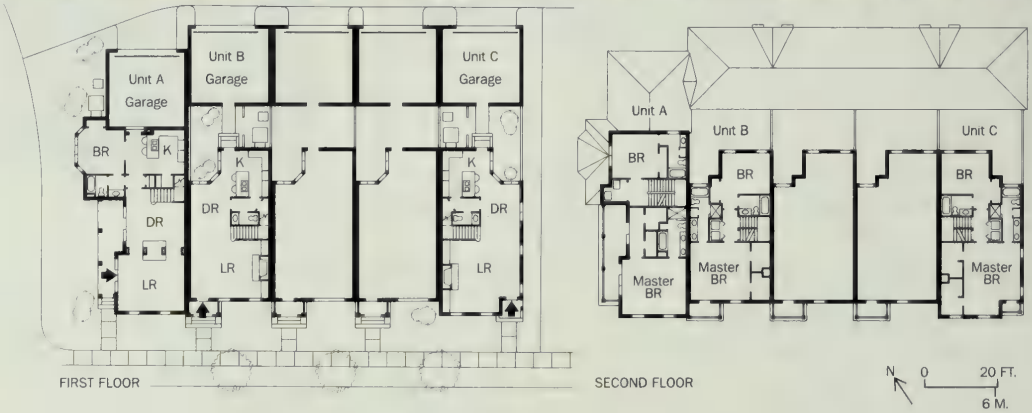






Harbor View Townhomes: *The Charleston contains five units in a 1,949-square-foot building.*

Harbor Town includes many different housing types—from apartments to single-family homes. These townhouses are in a single building, intended to look more like an old mansion than new development.



than bad design, is no sales," he says. To make sure this doesn't happen, Looney works closely with the firm's research division. He talks to real estate agents and pays attention to trends emerging from the custom market.

"Knowing the market and meeting the needs of that market is much different than marketing," Looney says. "People don't want vaulted ceilings, they want liveability. They want a house that solves their problems, like where to put wet boots or where to store all the canned goods, not just arched doors."

He's found that most people in the Southeast want a house that is an interpretation of one of the classical American architectural styles from the late 1700s to the mid-1800s, Georgian or Federal. His efforts go into overall design, instead of 56 pages of molding details. "You try to get as close as you can to the historical style, and you make sure the builders don't freelance on you," he says.

Balancing quality, square footage, and price is essential. "If you invest in a few good interior surfaces, you can leave out the fancy moldings and trims," Looney says. He typically uses wide-plank heart-pine floors instead of the customary 3½-inch-wide second-grade oak. Tall ceilings and doors also offer perceived value.

The approach may seem formulaic to those who think of architecture as art. Looney is ready with a defense. "We build communities, not objects. This isn't art, these are people. When land planning and houses come together, the whole becomes a work of art."

At the same time, he also sees many merchant-builder houses designed to please the market instead of aspiring to good design. "The bad ones, and they are the majority, are either overblown and bombastic or they are cookie cutters with basically no aesthetic value," Looney notes. "They add nothing to the streetscape or to the community."

Homebuyers often do not have the time or the budget to design something custom. "I think of spec houses as a convenience and a service. Anyway, custom doesn't always mean the highest level of design. Dollars and time have nothing to do with design awareness or taste." Speculative housing, Looney adds, is "just another level of choice." ■



A typical streetscape in Harbor Town, where development emphasizes neighborliness.

Sources

Framing wood: *Trus Joist MacMillan, Weyerhaeuser*
Wood siding: *Mesquite*
Roof shingles: *GAF Building Materials Corp.*
Wood windows: *Sierra Pacific*
Exterior patio doors: *Weathershield*
Locksets: *Kwikset*
Paints and stains: *Sherwin-Williams*

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CIRCLE 46 ON INQUIRY CARD

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BusinessWeek ARCHITECTURAL RECORD

THE AMERICAN INSTITUTE OF ARCHITECTS

Good Design is Good Business

The Second Annual Business Week/Architectural Record Awards Panel Discussion and Luncheon

How do you measure the success of a well-designed building? What is the process in which a client's request for utility, and an architect's attempt at interpretation produces a structure of both beauty and function? Can office design really give business a competitive edge?

These were some of the questions fielded by a panel of architects and executives at the Second Annual Business Week/ Architectural Record Awards Panel Discussion and Luncheon held at Chelsea Piers in New York City on November 5th. Moderated by Steve Kroft of "60 Minutes," the discussion kicked off an afternoon in which the eight winning designs of this year's competition, "Good Design is Good Business," were lauded for, as one panelist put it, successfully "obeying the laws of economics — while creating an environment stimulating to workers."



Steve Kroft, 60 Minutes and Dave Ferm, publisher of Business Week

This year's winners included such diverse facilities as a waste-transfer station in Zenderen, The Netherlands, whose sleek curves and planned metamorphosis into a stadium won over an otherwise resistant local constituency; and GAP Inc.'s new environmentally sound headquarters in San Francisco whose grass covered roof, skylit atriums, and lap pool helps it woo the Bay area's best talent. "We just wanted to create a great place to work cost-effectively," said GAP Inc.'s Senior Director of Environmental Affairs, Maria Moyer-Angus, before sitting down to lunch. "We hope that getting this award will help other companies see that intelligent design can be good for business and the environment."

Presented in association with the American Institute of Architects, approximately 200 invited guests came to the competition's culminating event. As enlarged images of the champion designs sat on display, the audience and panelists deliberated on how business executives and their architects reach design epiphany; and whether there was any measurable payoff to the company. "Virtually every submission made the claim for the design having improved the bottom line or employee morale," observed panelist and contest juror Sherri Geldin, director of the Wexner Center for the Arts in Columbus, Ohio. "Certainly the clients were convinced of it."

This year's program was sponsored by Herman Miller, Inc., Bentley Systems, Incorporated, and USG Corporation. Once again teamwork ruled as both the architect and client of each winning entry were presented with a sculpture created for the occasion by James Carpenter Designs.

Herman Miller is proving itself to be a loyal supporter of this marriage of industries. The office furniture manufacturer helped initiate the awards program by sponsoring its maiden voyage last year. "Good design is a hard nose business strategy," Gary S. Miller, executive vice-president at Herman Miller, Inc. told the gathering before the start of the morning panel.

Mark Schurman, the company's director of external communications, went further in explaining Herman Miller's commitment. "This gives us a great opportunity to celebrate well designed spaces which



Panel Discussion: Good Design is Good Business lead by Steve Kroft of 60 Minutes. (below) Gary S. Miller, executive vice-president at Herman Miller, Inc. addressing the assembly.



contribute to the performance of an organization." Best known for revolutionizing the corporate work environment with the introduction of the systems furniture, Herman Miller's vision aligns itself perfectly with the spirit of the awards according to Schurman. "We believe that with the increasing impact of technology and the flattening of organizational hierarchies, the office of the future will require an even wider range of solutions. These awards are very forward thinking, because they demonstrate the crucial link that's needed between the architectural profession and business."

Bentley Systems Inc., headquartered in Exton PA, provides engineering software for large-scale building projects. According to Greg Bentley, president,

Good Design is Good Business

The Second Annual Business Week/ Architectural Record Awards Panel Discussion and Luncheon



Greg Bentley, president Bentley Systems, Incorporated

sponsoring "Good Design is Good Business" simply reflects what he calls "the Bentley continuum." "We are trying to encourage executives' aspirations in terms of how technology can help them manage their facility throughout its life cycle."

Bentley's integrated products and services save time and money for clients and architects by focusing on more than just design. Their software technology allows designers, builders, and managers to have, at the click of a mouse, the full scope of a building's engineering as long as it stands. According to Bentley, the company endeavors to "...promote business driven design by strengthening the relationship between executives and architects."

USG Corporation, the company who gave us the original brand name drywall, Sheetrock® Brand, now a standard in the industry, continues to build on its tradition of innovation through the aegis of the awards. "Innovation isn't just in the architecture, it's in the materials," says Carol Deely, manager of Strategic Marketing for USG. "As a leader in our business, we want to align ourselves with leaders in the architectural industry and their corporate clients. We believe that good design means better productivity. If people are happy in their space, they'll be more [illegible]ctive."

In three years, USG will celebrate its 100th anniversary of helping designers solve problems by supplying them with building materials.



James S. Metcalf, senior vice-president of sales and marketing, USG Corporation

James Metcalf, senior vice-president of Sales and Marketing pledged USG's continuing commitment to good design in his opening remarks to those at the luncheon. "These awards honor the intangibles that will be the standard of the next millennium."

Victor C. W. Dzidzienyo, director of the School of Architecture and Design at Howard University in Washington, D.C., attended the program in order to keep his students on the cutting edge of design. "Business with architecture raises the level of design up a notch," he said. Before catching a train back to the Capital, Dzidzienyo obtained a promise from Kas Oosterhius, architect of the waste-transfer station, to be a guest lecturer at Howard University in 1999.

The college professor was not at all surprised that it was Herman Miller, USG, and Bentley Systems that made the afternoon possible. "They each play a role in bringing design to the next level. Herman Miller represents function, USG materials, and Bentley technology. By coming together here they are simply refining the process."■



Luncheon Photo from left, Christopher Scott Hays, AIA, William McDonough+Partners, PLC; Kevin Burke, AIA, William McDonough+Partners, PLC; Maria Moyer-Angus, GAP, Inc.; Walter A Hunt, Jr.. AIA, Gensler & Associates Architects; Elaine Shusterman, vice-president/publisher, Architectural Record; Arthur Gensler, Jr. FAIA, Gensler & Associates Architects; Charles B. Rose, AIA, Thompson & Rose Architects.

1998 Award Recipients

Praxair Distribution Center
Ankenny, IA

Client: **Praxair Distribution**
Architect: **Herbert Lewis Kruse Blunck Architecture**

Waste-Transfer Station
Zenderen, The Netherlands

Client: **Regio Twente**
Architect: **Oosterhuis Associates**

QMR Plastics Division
River Falls, WI

Client: **Quadion Corp**
Architect: **James Snow Architects**

GAP, Inc.
901 Cherry Office Building
San Bruno, CA

Client: **GAP, Inc.**
Architect: **William McDonough + Partners; Gensler**

Futures by Temps
Reston, VA

Client: **Temps & Co.**
Architect: **Adamstein & Demetriou Associates**

McNitt Building
Oklahoma City, OK

Client: **K.J. McNitt Construction Company**
Architect: **Elliott + Associates Architects**

Osho International Offices
New York, NY

Client: **Osho International**
Architect: **Daniel Rowen Architects**

The New York Times Printing Plant
College Point, NY

Client: **The New York Times**
Architect: **Polshek and Partners Architects**

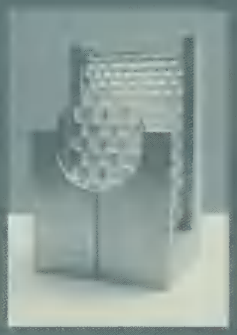
Congratulations to the winners of the

1998 Business Week/Architectural Record Awards,

presented in association with

The American Institute of Architects

in New York City on November 5.



Special thanks to Bentley Systems, Incorporated,
Herman Miller Inc., and USG Corporation for their
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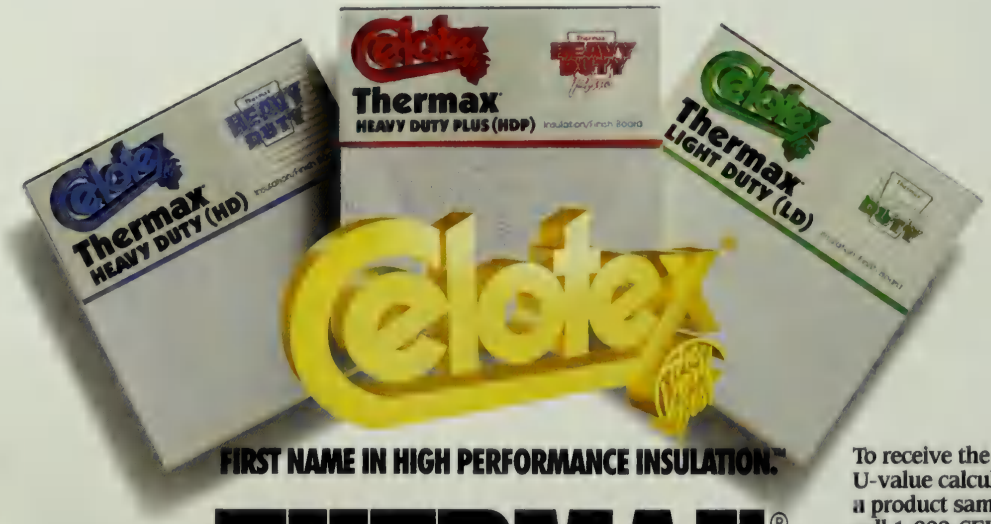
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CIRCLE 48 ON INQUIRY CARD

Metal Flashing on Low-Slope Roofs

IT'S NOT ALWAYS EASY TO UNDERSTAND FLASHING SYSTEM DETAILS, BUT DESIGNING THEM PROPERLY IS ONE OF THE SECRETS TO A WATERTIGHT ROOF.

by Barbara A. Nadel, AIA

Flashings are the glue that holds the roof of a building together," says Patrick C. Rehse, FAIA, of Architectural Resources Team in Phoenix. They are as important to the performance of a low-slope roof as the membrane selected, the installation method used, and the quality of the craftsmanship. But too often flashings fail—not because of the materials themselves but because of the way the systems are designed.

The flashing system serves a number of purposes on the roof. It seals the roof membrane edges at walls, vents, curbs, drains, gravel stops, scuppers, headers, and penetrations. It allows for movement at expansion joints and other places where the roofing material is interrupted or terminated, while sealing out water. It also covers and protects the edges of the membrane at seams and penetrations, and can be used to conduct water from the roof through scuppers.

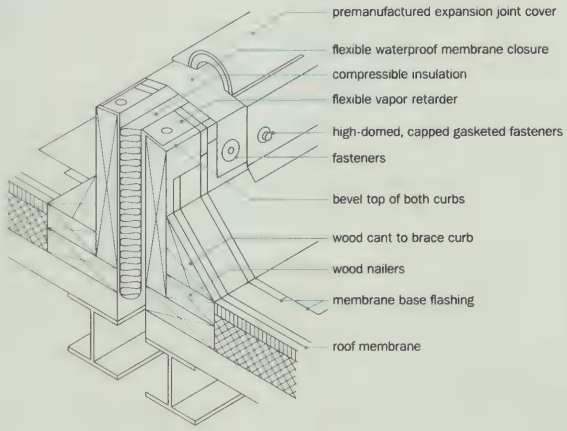
The material used for flashing depends chiefly on what the base membrane is made of. While there are many types of low-slope roofing, they can be roughly divided into five categories: single-ply, built-up, modified bitumen, sprayed-in-place urethane foam, and structural metal. Achieving a design that is as close to watertight as possible with these materials alone should be the architect's first priority. There's no substitute for a well-designed roof.

The basic elements of flashing design apply to all types of roofs. Base flashing is a continuation of the roofing membrane that is typically applied separately from the field application. The components, made of sheet metal, include cap flashing or counterflashing, which is applied to shield the exposed portions of the base flashing or to extend into the wall to divert any interior water to the exterior of the wall. Metal copings are used to seal and waterproof the top of a parapet or building wall. Edge flashings are used to hold the gravel in place on a ballasted roof or to finish off the edge of other types of roof. Expansion joints are structural separations that accommodate movement between two building elements, or at specific locations, such as where the roof deck changes direction. Scuppers create an exit for water through a parapet wall or an elevated edge. Each of these metal flashing components require equal design consideration.

However, few architects are thoroughly schooled in the purpose, mechanics, and theory of flashing design, according to Jack Robinson, director of technical services for the National Roofing Contractors Association (NRCA). "Roofing details rarely come from architects fully thought-out," he says. "They tend to fall back on the manufacturer's guidelines, which are generalizations, not job-specific details. Architects must take those generalizations and adjust them to the characteristics of the building."

Ray Corbin, of the Better Understanding of Roofing Systems





EXPANSION JOINT WITH PREMANUFACTURED COVER

Premanufactured expansion joints (above) include a bellows, a flexible membrane that absorbs movement. The joint should be logically detailed where it meets the parapet wall.

CONTINUING EDUCATION

Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD/ AIA Continuing Education article. To receive credit, turn to page 140 and follow the instructions

LEARNING OBJECTIVES

After reading this article, you should be able to:

1. Describe the purposes of roof flashing.

2. Identify the basic tenets of flashing design.

3. Explain the importance of careful flashing design to creating a waterproof roof.

4. Describe where most roofs fail and the causes of the most common failures.

5. Describe the importance of a careful construction and maintenance program.

Barbara A. Nadel, AIA, is principal of Barbara Nadel Architect in New York City, which specializes in health, criminal justice, and institutional planning and design.

Institute (BURSI), agrees. "There is no such thing as a typical roofing detail. There is a tremendous amount of variation depending on where the building is, its structure, and the materials used."

Codes and standards provide some guidance for architects, but there's no substitute for education. Several roofing trade and educational organizations, including the NRCA and BURSI, offer courses and seminars. But according to a survey by the NRCA, not a single architectural school offers courses on roof detailing. "Architects aren't getting any training on this in school, but it should be in the core curriculum," Robinson says. "Something like 50 percent of all building-related lawsuits have to do with the roof. This is the most litigious segment of the industry."

Failing to properly detail and maintain flashings is expensive. From 1993 to 1998, professional liability insurer CNA/Schinnerer reports, indemnity payments on roof claims against design professionals averaged $77,000 per claim. While 65 percent of roof claims were closed without any payment to claimants, professional liability specialist Mike Maloney, of Petty Burton Maloney Associates in Rochelle Park, New Jersey, notes that the insurer's average payout excludes the design professional's related legal costs and hours spent defending the case, which add up quickly, even in cases without financial settlements.

"Good flashing design is certainly not the most glamourous aspect of architecture," Robinson says. "Given a choice between creating buildings and detailing roofs, no architect would pick the roof. But understanding flashings is what keeps water out, and there is nothing more essential to a building's survival."

Flashing basics

Bituminous flashings are created on the roof by combining felts and adhesives. Single-ply and spray-on flashings, often made from the same material as the membrane, are usually made up in the field. Metal, which is used with all types of roofing, may be formed in a sheet metal shop or in the field. Most thermoplastic single-ply manufacturers have metal flashings coated with the membrane so they can be formed in the field and welded directly to the membrane, creating a very durable flashing.

EXPANSION OF BUILDING MATERIALS

BUILDING MATERIAL	COEFFICIENT OF THERMAL EXPANSION	INCREASE IN 10 FT LENGTH IN WHICH ONE IN. INCREASE OF AIR TEMP. IS...
GALVANIZED STEEL	.0000067	
STEEL	.0000067	
TERNE	.0000067	
WROUGHT IRON	.0000067	
MONEL	.0000078	
COPPER	.0000094	
STAINLESS STEEL	.0000096	
ALUMINUM	.0000129	
LEAD	.0000161	
ZINC	.0000174	
PINE PARALLEL TO GRAIN	.0000031	
BRICK MASONRY	.0000031	
LIMESTONE	.0000045	
CONCRETE	.0000078	
CAS[illegible]UM PLASTER	.0000091	
PLAST[illegible]	.0000092	

THE EXPANSION [illegible]NT IS IN INCHES PER INCH PER DEGREE F. THE VALUE MAY VARY DEPENDING ON THE RANGE OF [illegible]RE INVOLVED.

SOURCE: ARCHITE[illegible] METAL MANUAL, 5TH EDITION

The biggest pro[illegible] with metal counter-flashing is that it [illegible] more than non-building materials. The coefficient of expansion varies among different types of metal.

GUIDE FOR SHEET METAL FLASHING FASTENERS*

BASE METAL	FASTENER
ALUMINUM	STAINLESS STEEL OR ALUMINUM ALLOY
GALVANIZED STEEL	CADMIUM-PLATED OR GALVANIZED STEEL
STAINLESS STEEL	STAINLESS STEEL
TERNE-COATED STAINLESS STEEL	STAINLESS STEEL
TERNE METAL	CADMIUM-PLATED OR GALVANIZED STEEL
COPPER	COPPER, BRASS, OR BRONZE

* BASED ON GALVANIC ACTION

SOURCE: ARCHITECTURAL SHEET METAL MANUAL, 5TH EDITION

Sheet metal flashing materials include aluminum, copper, lead, stainless steel, Monel (a nickel and copper alloy), steel, and zinc alloy. Galvanized steel is the most commonly used because it is easy to work with and tends to be less expensive than other materials. Copper is likely to last the longest, but it is expensive, and water running off of it stains many building materials. Which metal is selected also depends on cost, tensile strength (the stiffness of the metal), application details, the material's coefficient of expansion, and its compatibility with the base membrane.

When preparing a flashing design, select a gauge appropriate to the application. Metals that are too light are more likely to be damaged or to blow off in heavy winds. A 24-gauge galvanized steel, for example, is fine for cap and base flashings, but 22 gauge is necessary for copings greater than 12 inches.

Within the past 10 years, increased attention has been focused on the effects of wind on roofs. The ability of metal flashings to resist uplift is directly related to the thickness of the metal used and the way it is attached. The vertical face is most prone to damage from wind, though the metal edge is also susceptible to problems because it is affected by wind blowing up the side of the building and across the top. Broad sheets of flashing are usually held in place with a continuous cleat so that wind will not go up and under the membrane, potentially causing condensation and other problems.

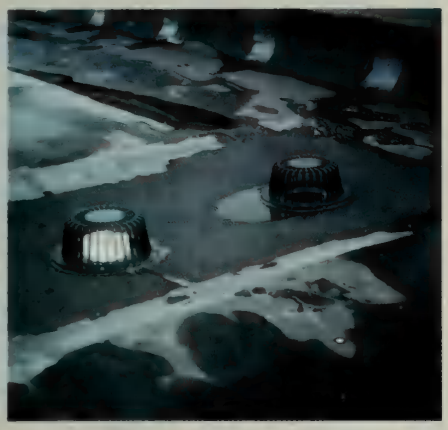
Different metals chemically react when they come into contact with each other, which leads to corrosion. Copper and steel, for example, are generally incompatible and must be separated when used on the same roof. Some metals will cause streaks and stains on cedar or redwood siding or trim. Compatibility problems can also arise between minor components, such as nails and screws. Stainless steel is a good choice for these because it will not react with most metals. The membrane manufacturer can offer advice.

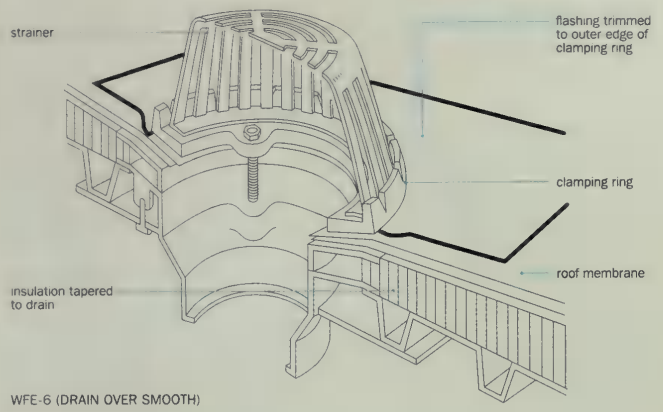
Differing rates of expansion and contraction caused by temperature fluctuations also render some flashing materials incompatible with roofing materials, the deck beneath, and other structural elements. All of the elements of a roof move to some degree as weather conditions change. In cold climates, for example, materials shift significantly as sunlight heats the roof by day and later, when temperatures plummet at night. Also, temperatures on rooftops may vary considerably from those at other levels of a structure. The temperature and season when the flashing is installed are also significant. Tightly fastening metal when temperatures are warm means it won't have room to contract when temperatures drop.

Metal moves more than nonmetallic building elements, such as wood or concrete. Metal flashings must be large enough to do the job but small enough to prevent unnecessary movement.

Dimensional changes are accommodated by specifying materials that move at similar rates or by otherwise building some flexibility into

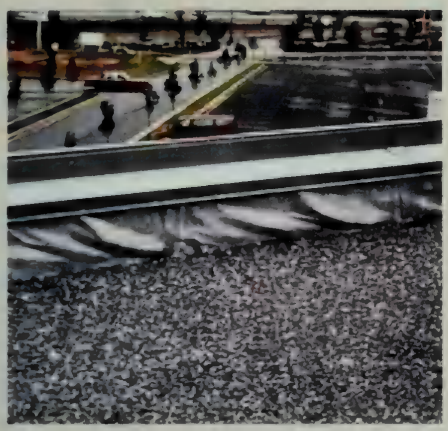
Ponding around a drain cap is caused by failing to properly taper the deck and insulation where they join the drain. Base flashing should be carefully trimmed to the clamping ring. The slope around the drain should be greater than that of the roof field.

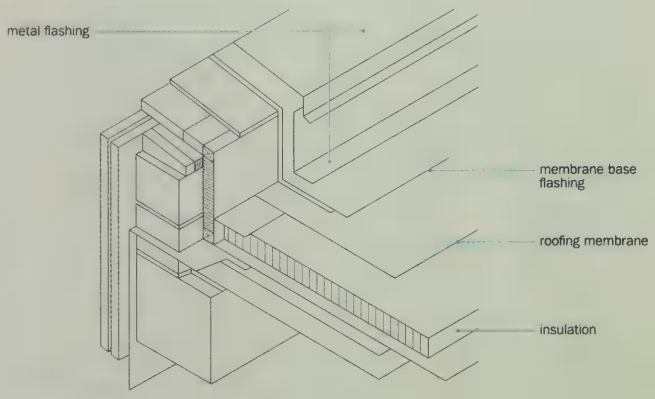




WFE-6 (DRAIN OVER SMOOTH)

Loose base flashing at the parapet wall is likely to pull out from the coping, providing a place for water to enter the structure. In this example, the coping must be removed and the membrane refastened to the wall.

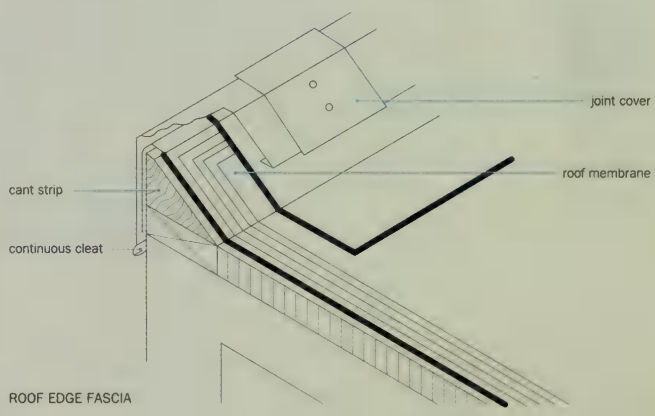




LOW PARAPET WALL

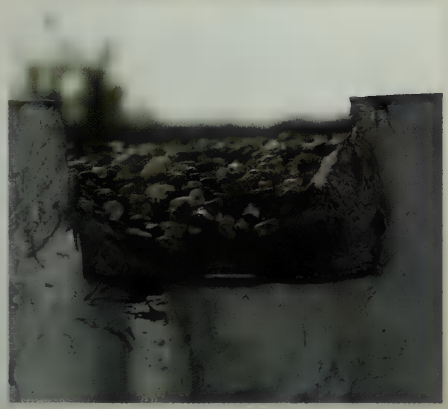
An embedded metal edge flashing is almost guaranteed to cause problems; the metal below has a different coefficient of expansion than the overlapping membrane. The edge flashing should be reinstalled atop the membrane with four-inch joints to allow for expansion.

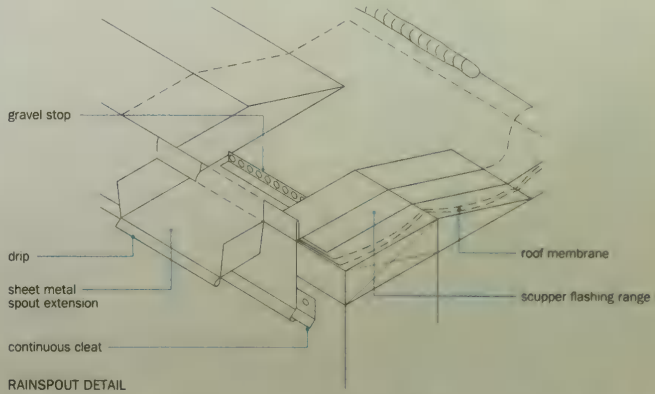




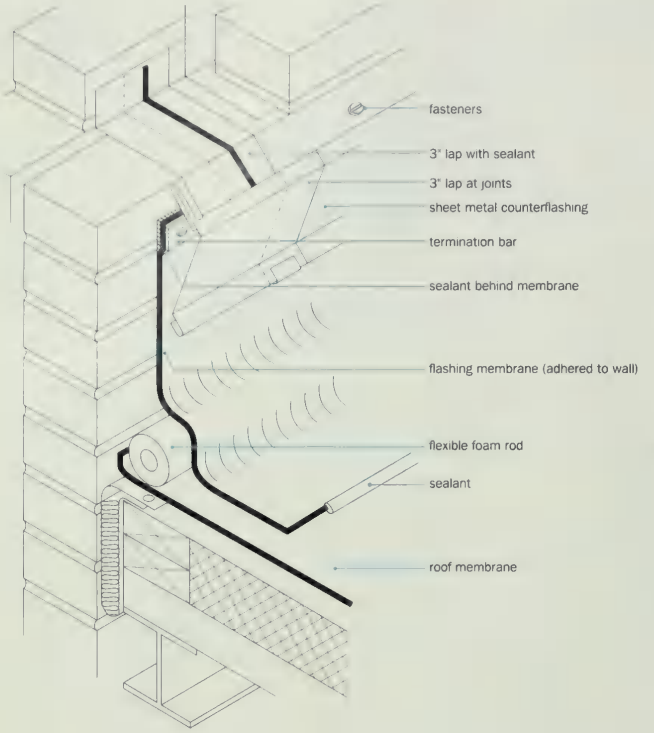
ROOF EDGE FASCIA

The lack of a gravel stop, sheet metal spout extension (conductor head), and counterflashing makes the wall below likely to leak. Water should be directed away from the wall with a downspout. Metal flashing should wrap over the wall, protecting the membrane flashing.





RAINSPOUT DETAIL



the design. There are two ways to control movement: by joining (soldering or otherwise permanently fastening) the laps so that the system moves as one piece, or by designing each joint as an expansion-control system. If the latter approach is used, the sections of metal must be adequately lapped at the joints and they must be short enough to limit movement. Cover and backer plates, though they require more installation time, shield lap joints—where water leaks are likely to occur. High-performance, elastomeric caulk also helps keep water out.

To allow the membrane and the metal flashing to move independently and still maintain a seal in all climates takes careful design. Sealants, caulks, and mastics, used in accordance with manufacturer specifications, can add an extra element of protection against water, though none of these is a substitute for proper detailing. Adhesives give added strength and should be specified for vertical grades. Keep in mind, though, that adhesive compatibility is an issue, as is proper application. Some solvent-based adhesives won't adhere to modified bitumen or metal in cold weather, for example, because the solvent evaporates too slowly to form a bond.

Design tips

Thinking three-dimensionally helps architects understand the roof structure and how details work at perimeter joints, corners, and other locations where two-dimensional details don't tell the whole story, according to roofing consultant and forensic expert Toby Nadel, AIA, in Dewitt, New York. "In situations where eaves and copings change planes or terminate against a wall, three-dimensional sketches can explore these transitions for evaluating the integrity, the aesthetics, and how watertight the termination is," he says.

"Perspective drawings are essential," the NRCA's Robinson agrees. "It's the only way for the architect and the roofer to understand and interpret flashing details."

Drawings are particularly important at well-known trouble spots—perimeters, non-wall-supported deck junctions, and parapet walls, to name a few—where leaks are most likely to occur. The following are typical applications for metal flashing components and techniques for improving their performance.

Roof perimeter. Differing coefficients of expansion between the metal edge and the roof membrane can cause either or both materials to split. Successful designs provide room for expansion, set the edge flashing in some type of mastic, and elevate the edge above water level so that the roof will not leak if there are splits.

Parapet walls. Allow sufficient height for all the components of the system so that any potential route for water to penetrate the roofing envelope can be blocked. An adequate base membrane also means that there is enough room to properly counterflash; otherwise the metal can wind up resting directly on the roof. The top of the base flashing should

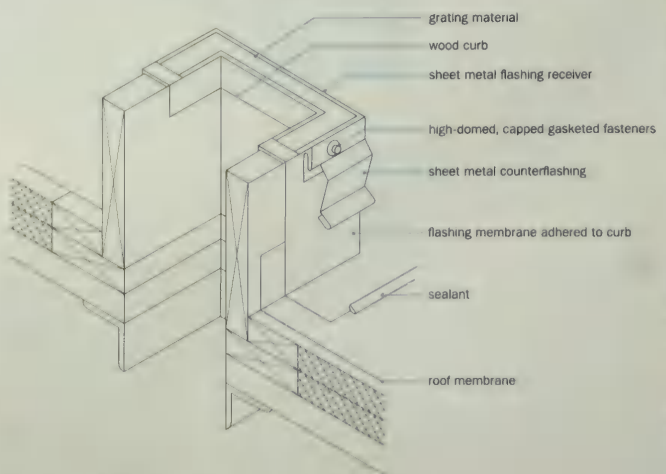
PERSPECTIVE DRAWINGS ARE THE ONLY WAY FOR THE ARCHITECT AND THE ROOFER TO INTERPRET METAL DETAILS.

be protected with a through-wall or surface-mounted counterflashing, or a coping.

Base flashing: Flashing height should be installed eight to 12 inches above the highest point of a roof plane, including at parapet walls, the bases of mechanical units, crickets, and tapered insulation systems. In severe climates with heavy snowfalls, higher base flashing may be advisable to accommodate more thermal movement. Masonry parapets need to breathe, however, and architects often mistakenly detail flashing that seals the entire side of a masonry parapet wall, Robinson says. Cracks and spalling occur when moisture enters the wall and is trapped.

Fastening: Proper fastening on vertical elements is essential to prevent wind uplift and to keep the metal from simply sliding off as it wears. Nailing the counterflashing at eight-inch-on-center intervals is the norm, but six-inch intervals may be needed in some locations. Backing that up with a compatible adhesive adds strength.

Non-wall-supported deck junctions: When a separate roof deck structure abuts a wall, the two elements will expand and contract differently. This is an especially complex junction because it is an expansion joint and a wall flashing detail. Avoid doing anything that would fasten the wall and the deck, inhibiting movement. To that end, the metal flashing should be lapped—four inches is usually sufficient—to allow move-



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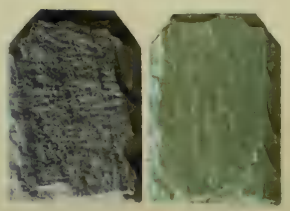
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ment. Base flashing should be high enough to protect the adjacent wall and allow adequate space for the counterflashing.

Expansion joints: Premanufactured expansion joints, which come with sheet metal flanges and bellows (the flexible material that absorbs the movement), are easy to install. Sheet metal joint flashings, often with an accordion fold to absorb movement, may also be made in the field, which may be necessary when there are numerous slope or radius changes or joints that are otherwise complex. These must be carefully detailed, since both sides of an expansion joint cannot be fully secured. Compressible insulation within the joint cavity and a vapor retarder in the deck slow heat and moisture transfer. Cap these with sealant to keep water out.

"For some reason, designers think expansion joints end when they hit the end of the roof or slam into a parapet wall," says Douglas Pearmain, a senior product design engineer with Johns Manville's roofing systems division. "But continuing the seal is important." Expansion joints should run up and over the parapet wall and make a logical transition into the edge of the roof.

In the field

To avoid roof failure, Nadel recommends inspecting several key elements during construction. Flashing materials should be clean and dry prior to application, relatively smooth, and of proper thickness. Ensure that flashing is solidly anchored to decks and walls. Understanding what is beneath the flashing determines the quality of the job. For example, the roof deck and the flashing systems may be of adequate quality, but if the deck has inadequate nail retention properties, the flashing will pull out under high winds or other stresses. Wood blocking should be of adequate thickness and height to receive nails for both the roofing membrane and the flashing. Cants and crickets should be securely anchored.

Construction scheduling also influences flashing details, says Richard Koziol, AIA, roofing consultant with Wiss, Janney, Elstner Associates Inc. in Northbrook, Illinois. Thinking ahead means all of the base flashings can be of the same height, saving the architect from specifying transitions and odd joint details during construction.

Selecting a qualified roofing contractor and conducting regular field inspections helps control quality. For large, complex roofing projects, owners should, and are often required to, hire a full-time roof inspector equipped with a camera, a notebook, and even a cell phone to report from the site. Architects can hire a clerk of the works, who will contact the architect when problems arise. Some federal or public contracts require continuous on-site supervision.

Proper flashing design should include a routine preventive maintenance program to extend roof longevity and minimize costly emergency repairs. Without proper maintenance, even flashing of the best design, workmanship, and materials will eventually fail. Roofs should be inspected after major storms, heavy winds, and during and after construction for damage caused by foot traffic, equipment, and faulty materials. Architects can assist owners by providing seasonal routine maintenance strategies and roof management programs. ■

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

INSTRUCTIONS

- **Read the article "Metal Flashing on Low-Slope Roofs" using the learning objectives provided.**
- **Complete the questions below, then check your answers (page 174).**
- **Fill out and submit the AIA/CES education reporting form (page 174) or file the form on ARCHITECTURAL RECORD's Web site at www.archrecord.com to receive two AIA Learning Units.**

QUESTIONS

1. What are the basic components of a flashing system?

2. What are the major types of sheet metal flashing? Which is used most often?

3. How are dimensional changes in metal flashing accommodated?

4. Where do most roof problems occur and how can those problems be avoided?

5. How are flashings solidly anchored to the roof?

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NEW STANDARD PROMOTES MORE PRECISE SPECIFICATION OF RESILIENT WALL BASE

The development of new synthetic materials can often cause confusion in the specification of architectural products. Such was the case with the introduction of manufactured thermoplastic rubber for cove base applications. Until recently, only two types of cove base had been standardized—rubber and vinyl. Now, however, after an extensive development process, a new standard provides for three types of cove base, adding the new category of a vinyl-rubber blend to the mix.



In 1966, the Federal Specification SS-W-40A classified cove base into two categories—rubber and vinyl. What the authors of that standard didn't foresee was the development of a vinyl-rubber blend called TPR or thermoplastic rubber. In the 1980s, confusion arose when specifying the product. TPR is of a different quality than SBR or real rubber base, but both types were simply categorized as "rubber." Most TPR bases, however, are 95 percent or more vinyl.

It's not that TPR isn't an appropriate material for cove base. All three—vinyl, TPR, and thermoset rubber—have their advantages and disadvantages (see chart across page). It's just that manufacturers of cove base felt it was paramount that architects and specifiers got rubber when rubber was specified, vinyl when vinyl was specified, and TPR when TPR was specified.

It wasn't until this year, however, that a new standard for cove base was approved. In March the ASTM Committee F.06 on Resilient Flooring approved a new cove base specification, F-1861, which replaces SS-W-40A and distinguishes between the three separate types of cove base.

MANUFACTURING PROCESSES

Before discussing particulars of the standard, take a moment to review the different manufacturing processes of cove base. Cove base manufacturing takes on several forms depending upon the type being produced: thermoset vulcanized rubber, thermoplastic rubber (TPR), or thermoplastic vinyl. All three types are similar in appearance and design function, but differ in performance.

Thermoset rubber cove base production starts with raw rubber, virgin fillers and additives necessary to produce the color and other desirable attributes of the product. These ingredients are mixed to achieve a homogeneous blend ready for further processing. This blend is then extruded or molded to the desired shape, size and length. The formed part is then vulcanized under heat and pressure. This vulcanization process distinguishes thermoset cove base from the other types.

Thermoplastic and vinyl cove bases are manufactured by a common process. The raw materials are introduced to the extruder where the blending and forming processes take place at an elevated temperature. The high temperature is necessary to lower the viscosity of the compound so that it can be formed into the desired shapes. This mixture is then extruded or molded and cooled to produce the final product. Because they are not vulcanized, these products can be reshaped by the introduction of high temperatures.

AIA / ARCHITECTURAL RECORD
Continuing Education Series

Use the learning objectives below to focus your study as you read *New Standard Promotes More Precise Specification of Resilient Wall Base Products*. To earn two health, safety, and welfare learning credits, answer the questions on page 146 and follow the report instructions on page 174 or use the Continuing Education self-report form on *RECORD*'s website—www.architecturalrecord.com.

LEARNING OBJECTIVES

After reading *New Standard Promotes More Precise Specification of Resilient Wall Base Products*, you will be able to:

- Compare the characteristics of rubber, vinyl, and TPR cove base.
- Describe the significance of the new specification standard for cove base products.
- Explain the performance requirements cove base is tested to meet.

This continuing education opportunity is brought to you by **The Roppe Corporation**, one of the nation's largest suppliers of baseboard. Founded by Thony A. Roppe in 1955, the company manufactures vulcanized rubber, thermoplastic rubber and vinyl resilient wall base. Other flooring products include rubber and vinyl stair treads (step coverings), rubber and solid vinyl floor tile, stair nosings, corner guards, reducer strips, carpet edgings and other specialty shapes used in installing resilient wood, ceramic floors and carpentry.

PERFORMANCE COMPARISONS

The three types of cove base—thermoset vulcanized rubber, TPR, and vinyl—vary in performance and cost, as outlined below.

It's interesting to note that the standards do allow for "any polymeric material or combination of polymeric materials—if, in combination with processing chemicals, fillers and colorants, the material can be formed into wall base that satisfies all the requirements of the specification." This includes "suitable" recycled polymeric material.

While ASTM F-1861 is a more up-to-date classification system, the standard is not meant to address all safety concerns associated with the use of cove base. In fact, the standard states that it is "the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability or regulatory limitations prior to use."

By implementing the new standard, manufacturers are ensuring that customers get exactly what they specify—i.e., insurance that customers receive a product of similar quality when stating "or equal."

ADDITIONAL SPECIFICATIONS

The standard, however, goes well beyond just establishing the classifications. For instance it establishes two groups of cove base:

- Group 1 — Solid (homogenous)—"The color shall be uniform throughout the entire thickness of the wall base."
- Group 2 — Layered (multiple layers)—"The surface color need not extend through the entire thickness of the wall base, but must extend throughout the entire wear layer." In addition the layered wall base "shall have a minimum wear layer thickness of 0.002 inches and shall not delaminate under normal use."

Three styles of cove base are specified:

- Straight wall base—"The exposed surface of straight (toeless) wall base is vertical."
- Cove wall base—"The exposed surface of cove wall base shall be distinguished by a 'toe' at its bottom edge." The toe can be curved, angled, or both, to fit snugly on top of the floor when the vertical portion of the cove base is adhered to the wall. The intersection of the exposed surfaces of the toe and the vertical portion of the case base need to be rounded and smooth to facilitate maintenance.
- Butt-to wall base—"The exposed surface of butt-to wall base shall be distinguished by a 'toe' that butts against the flooring." The leading edge of the toe is square to allow a tight, flush fit. The intersection of the exposed surfaces of the two and the vertical portion "shall be designed to facilitate maintenance."

ASTM F-1861 also provides corner specifications: that corners must be the same height and thickness as the wall base. Specifiers, however, should consult the manufacturer to ensure color acceptability between factory-made cor-

ASTM F-1861 Cove Base Type Classification

Type TS— Thermoset Vulcanized Rubber

Vulcanized SBR rubber base is highest quality.

Benefits

- Manufactured from 100 percent virgin synthetic rubber.
- Very flexible, cuts like butter, easy to install.
- Cleans easily with soap and water for years of worry-free wear.
- Will not shrink.
- Will not cup.
- The 1/8-inch thickness hides many wall irregularities.
- More rigid to better follow the contour of the floor.
- Ribbed back for positive adhesion.
- Does not have to be acclimated to room temperature.
- Coils can be installed immediately as you uncoil.
- Forming corners is easy.
- Color is inherent throughout the entire base, and the exclusive low gloss satin finish resists scuffing, gouging, and most chemicals.
- PVC free.

Disadvantages

- Its price. It costs more to produce and vulcanize a rubber product.

Type TP— Thermoplastic Rubber

A step up in quality from vinyl base products.

Benefits

- Less expensive than Type TS vulcanized rubber.
- More flexible than vinyl due to its rubber content (general guideline is 2 percent to 8 percent).
- The 1/8 inch thickness hides many wall irregularities.
- Top lip design helps base fit tightly against the wall.
- Ribbed back for positive adhesion.
- Color is solid throughout the base.

Disadvantages

- More expensive than vinyl base.
- Cuts and installs like vinyl.
- Shrinkage possibilities same as vinyl.
- Must be acclimated to room temperature before installation.
- Coils need to be unrolled at least 24 hours before installation.
- Forming corners is more labor intensive.

Type TV— Thermoplastic Vinyl

A good choice when price is a factor.

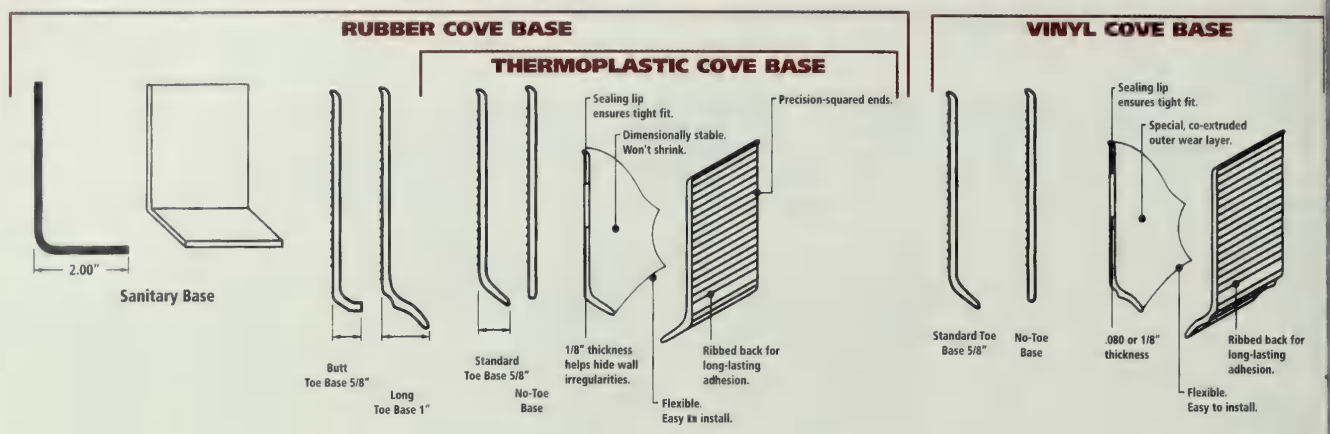
Benefits

- Co-extruded top layer resists scuffs and scratching, and won't fade, crack or chip.
- Inexpensive because it is made from PVC (vinyl).
- Top lip design helps base fit tightly against the wall.
- Available in 2 thicknesses, .080 inch and 1/8 inch.
- Ribbed back for positive adhesion.

Disadvantages

- Wall irregularities can telegraph through .080-inch base.
- Possible shrinkage problems.
- Must be acclimated to room temperature 24 hours before installation.
- Coils need to be unrolled at least 24 hours before installation.
- Forming corners is more labor intensive.

NEW STANDARD PROMOTES MORE PRECISE SPECIFICATION OF RESILIENT WALL BASE



ners and wall base prior to ordering, as factory-made corners and wall base may have visual color differences due to process and material variations.

When properly formed and fitted by the installer on the job, however, outside corners are acceptable and it is not necessary to specify preformed or premolded corners. Roppe provides video taped and written instructions to help the installer form acceptable corners on the job.

Cove base is commonly available in 2 1/2 inches, 4 inches and 6 inches. Roppe has introduced new heights of wall base designed to cover any wall blemishes, such as adhesive lines and paint and wallpaper damage, which may occur from removing old cove base. In such a situation you should consider using a 4 1/2 -inch base to replace a 4-inch base and a 3- or 3 1/2-inch base to replace a 2 1/2-inch base. These additional heights are extremely helpful for remodeling and are often used when replacing a thicker floor with a thinner one. (The wall base will move down, so you need a higher base to meet up with the wall covering.)

Typically, cove base is packaged 120-feet per carton in four-foot sections. Continuous 120-foot rolls, however, are available, which allow for more seamless installations and cleaner aesthetics.

When specifying colors, manufacturers should be contacted to verify color acceptability. Note that for solid (homogeneous) wall base, the color should be uniform throughout the entire thickness. For layered wall base, the surface color will not need to extend through the entire thickness of the wall base, but must extend through the entire wear layer, which should be a minimum of 0.002-inch thick.

PERFORMANCE REQUIREMENTS

In establishing the cove base standard, ASTM provided testing methods to ensure that products meet certain requirements. At issue are flexibility, staining of adjacent surfaces induced by wall base, resistance to light, resistance to chemicals, and dimensional stability. In addition, the standard calls for the wall base to "be free of defects, which adversely affect performance or appearance, such as blemishes, spots, lines, indentations, blisters, and delamination." Also, unless otherwise specified, the "back or bonding surface of the wall base shall be buffed, roughened, ribbed, grooved, or otherwise modified to improve the application to and adhesion to the wall surface; but in no case shall the thickness of the wall base be decreased to the extent that any depression or groove on the bonding surface be perceptible, under any circumstances, on the exposed surface."



Flexibility. Under ASTM Test Method F137 cove base is tested for flexibility. A sample is placed right-side out over a cylindrical mandrel and then bent around the mandrel. The product passes the test if it shows no visible cracks, breaks or other evidence of weakness. The test is then repeated with the sample faced against the mandrel. Flexibility is important when wrapping corners. And more flexibility means less discoloration at corners.

Staining of adjacent surfaces induced by wall base. To provide for long-term customer satisfaction, specifiers seek cove base that will not stain adjacent surfaces. "The wall base shall contain no ingredient that will cause staining of the finished surfaces adjacent to it," according to standard F 1861. This test involves placing two wall base specimens on the painted surface then covering the wall base specimens with a second metal panel so that the painted surfaces are sandwiched between and touching both metal panels. This assembly is then heated in an oven

(approximately 158 Fahrenheit for a period of approximately 166 hours). Simultaneously, a control panel without the wall base is tested. Any staining of the sandwich panel (beyond the specimen location greater than the discoloration of the control panel) is considered migration staining and objectionable.

Resistance to light. Test Method F1515 measures where a floor covering changes color from exposure to light over a specified period of time. In other words, greater light resistance means greater resistance to premature aging. The test will confirm that the color change of the wall base has an average ΔE no greater than 8.0 after 200 hours of exposure to light, simulated by a properly fitted xenon-arch radiant energy source. Check with the manufacturer for products recommended for use in entryways or other installations exposed to direct sunlight.

Resistance to chemicals. Accordance with Test Method F 925 ensures that the wall base has no more than a slight change in surface dulling, surface attack, or staining when exposed to the following chemicals:



- White vinegar (5 percent acetic acid)
- Rubbing alcohol (70 percent isotropy alcohol)
- Sodium hydroxide solution (5 percent NaOH)
- Hydrochloric acid solution (5 percent HCl)
- Sulfuric acid solution (5 percent H2SO4)
- Household ammonia solution (5 percent NH4OH)
- Household bleach solution (5.25 percent NaOCl).
- Olive oil (light)
- Kerosene (K1)
- Unleaded gasoline (regular grade).

The test calls for cove base samples to be exposed to these agents for approximately one minute. Samples should be checked five minutes after removing the potentially polluting agents. Check with the manufacturer for specific stain test results.

Dimensional stability. This test measures the changes in linear dimensions of wall base resulting from exposure to a specific amount of heat over a specific amount of time (approximately 180 degrees F for approximately six hours). Wall base should not change in length by more than 0.25 percent. Greater dimensional stability means less shrinkage, which means fewer gaps. Some products perform better in certain climates with large temperature changes.

Architects' Material Specifications

RUBBER COVE BASE (TS)

Flooring accessories shown in the finish schedule or listed herein as Rubber Cove Base or Wall Base shall be 1/8" (3.175mm) thick Type TS, Thermoset Vulcanized EXTRUDED RUBBER COVE BASE as manufactured by Roppe Corporation. It shall be constructed of first-quality materials properly VULCANIZED, and shall be smooth and free from imperfections which detract from its appearance. The base shall conform fully to the requirements of Standard Specification F-1861, Group 1 (solid).

All Cove Base shall be of the _____type (Straight, Style A, or Cove, Style B), with a height of _____ 2-1/2" (63.5mm), 3" (76.2 mm), 3 1/2 (88.9 mm), 4" (101.6 mm), 4 1/2 "(114.3 mm), 6"(152.3 mm), in lengths of _____48" 1.22m or 120' (36.576 m), and in the color stated, and of 1/8" (3.175 mm) thickness.

Sanitary Cove Base shall be 4" (101.6 mm) high with a 2" (50.8 mm) Sanitary Toe. The toe shall be .125" (3.175 mm) thick. The lengths shall be 48" (1.22 m) long and in the color selected.

VINYL COVE BASE (TV)

Flooring accessories shown in the finish schedule or listed herein as VINYL COVE BASE OR WALL BASE shall be Type TV, Thermoplastic Vinyl ROPPE VINYL WALL BASE, furnished by Roppe Corporation. It shall be constructed of first-quality materials and shall be smooth and free from any imperfections which detract from its appearance. The base shall conform fully to the requirements of Standard Specification F-1861, Group 2 (layered), Style A (Straight) or Style B (Cove).

All Cove Base shall be_____2 1/2" (63.5 mm), 4" (101.6 mm), or 6" (152.4mm) in height and in lengths of _____48" (1.22 m) or 120' (36.576m). The COVE BASE shall be of the _____type (Straight or Cove, 0.80" (2.03 mm) or 1/8" (3.175 mm) gauge, and in the color selected.

700 SERIES THERMOPLASTIC RUBBER (TP)

Flooring accessories shown in the finish schedule or listed herein as TPR Wall Base or Cove Base shall be Type TP Thermoplastic Rubber extruded base, furnished by Roppe Corporation It shall be constructed of the first-quality materials and shall be smooth and free from any imperfections which detract from its appearance. The base shall conform fully to the requirements of Standard Specifications F-1861, Group 1 (solid) Style A (Straight) or Style B (Cove). The Cove Base shall be_____2 1/2" (63.5 mm), 4" (101.6 mm), or 6" 152.4 mm) in height and in lengths of_____48" (1.22 m) or 120' (36.576 m). The Cove Base shall be of the _____type (Straight or Cove), 1/8" (3.175 mm gauge), and in the color stated.

NEW STANDARD PROMOTES MORE PRECISE SPECIFICATION OF RESILIENT WALL BASE

Learning Objectives:

After reading *New Standard Promotes More Precise Specification of Resilient Wall Base Products*, you will be able to:

- Compare the characteristics of rubber, vinyl, and TPR cove base.
- Describe the significance of the new specification standard for cove base products.
- Explain the performance requirements cove base is tested to meet.

Instructions:

The preceding article, provided by The Roppe Corporation, is part of the AIA/*Architectural Record* Continuing Education Series. You can receive two continuing education learning units that qualify for health, safety and welfare credits by reading the article, studying the learning objectives and answering the questions below. Turn the page upside down to check your answers. Then fill out the self-report form (page174) and submit it or use the Continuing Education self-report form on *RECORD*'s website, www.architectural-record.com.

Questions:

1. What is the significance of the new ASTM cove base specification?

Answer

2. What are the advantages and disadvantages of each of the three materials of cove base?

Answer

3. What are the performance requirements cove base is tested for?

Answer

4. Why was a third category for cove base established?

Answer

Answers:

1. The 1998 specification F-1861 separates cove base products into three categories of materials instead of two, adding thermoplastic rubber as the third category in addition to rubber and vinyl that were classified in 1966 by SS-W-40A. Cove base is also divided into two construction types—solid or multiple layers—and three styles—straight wall base, cove wall base, and butt-t-wall base.

2. A. Vinyl: Advantages are inexpensive, top layer resists scuffs and scratching; doesn't fade, crack, or chip; fits tightly against the wall; and is available in two thicknesses. Disadvantages are possible shrinkage problems, as well as the material must be uncoiled and acclimated to room temperature 24 hours before installation. The thinness of the material can show wall irregularities, and forming corners is labor intensive.

B. Thermoplastic rubber: Advantages are thermoplastic rubber products are less expensive than rubber but more flexible than vinyl. Thickness hides many wall irregularities and top lip design helps base fit tightly against the wall. Disadvantages to TPR is that is it more expansive than vinyl base, cuts and installs like vinyl and not like rubber, has the same shrinkage possibilities as vinyl. In addition, TPR must be uncoiled and acclimated to room temperature 24 hours before installation, and forming corners is labor intensive.

C. Rubber: Advantages are the final product is very flexible, cuts easily, is easy to install, cleans easily, will not shrink, will not cup, resist scuffing, gouging, and does not react to most chemicals. The thickness of the rubber product hides many wall irregularities, the ribbed back provides for positive adhesion. In addition, the product does not have to be acclimated to room temperature, forming corners is easy, color is inherent throughout the entire base. Disadvantages are higher cost than the other two products.

3. Cove base is tested for flexibility, staining of adjacent surfaces, resistance to light, resistance to chemicals, and dimensional stability. Cove base passes the flexibility test if it shows no visible cracks, breaks, or other evidence of weakness when bent around a cylindrical mandrel. The test for staining involves placing two wall base specimens on a painted surface and sandwiching them between metal panels that are heated for approximately 166 hours. The test for light resistance measures color change after approximately 200 hours of exposure to light. The test for chemical resistance measures surface dulling, surface attack, or staining when exposed to household strength white vinegar, rubbing alcohol, sodium hydroxide, hydrochloric acid, sulfuric acid, ammonia, bleach, olive oil, kerosene, and gasoline for one minute. The dimensional stability test measures changes in linear dimensions of wall base resulting from exposure to heat for six hours.

4. A third category of thermoplastic rubber was established because architects were specifying rubber base and thermoplastic rubber (TPR) was being substituted. Even though the word rubber is in its name, its properties are more like those of vinyl base because it is 95 percent vinyl. This new category allows architects to get the product they specify.

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CIRCLE 51 ON INQUIRY CARD



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CIRCLE 52 ON INQUIRY CARD

KITCHEN & BATH PORTFOLIO

As the turn of the millennium rolls near, kitchens and baths are playing an essential part in the work of many architects—and the everyday lives of their clients. We've come a long way from the turn of the last century, when these rooms were often well hidden and purely utilitarian. Designers of the modern kitchen have often opened it up to the rest of the house with work islands and dining counters. But only recently has the bathroom achieved greater openness, too—as more architects experiment with translucent partitions and opaque walls that don't always reach the ceiling. An emphasis on clean lines, natural materials (particularly the warmth of unpainted wood), and exposed industrial elements (often in glimmering stainless steel) have defined many kitchens and baths this year.

On the following pages, ARCHITECTURAL RECORD's fifth annual Kitchen and Bath Portfolio highlights eight projects from across the United States that address these design issues. The settings range from the urban landscapes of Chicago, Los Angeles, and San Francisco to the rural seclusion of southern Michigan and coastal Washington State. In many cases, the architects also designed or renovated the entire house—though this was not a requirement for inclusion. If you are interested in submitting a kitchen and/or bath project for next year's portfolio, please do not hesitate. We look forward to hearing from you. —*The Editors*

ON WOODED ISLAND NEAR SEATTLE, A RUSTIC HOME SET AMONG PASTURES

Though Vashon Island, Washington, is only a short ferry ride from Seattle, its lush forests seem far removed from the turmoil of urban life. For a pair of retired radiologists with a secluded 19-acre property, James Cutler Architects designed a comfortable yet rustic 2,330-square-foot home comprising five one-story, cedar-shingled sheds linked by breezeways. Sited on a brow between meadows and woodlands, the home looks out toward the fields where the owners' horses graze. Beyond the house, Cutler also built a barn and stable.

Like much of the complex, the light-filled kitchen relies on a rhythmic composition of simple, rectangular forms. Custom Douglas fir cabinets, mounted on pine-paneled walls, are articulated as four distinct boxlike units, each fitted with stainless-steel task lighting and hardware.

Celebrating pure functionality, the architect exposed the stove's galvanized-steel vent duct and centered it prominently among the cabinets. Similarly, a horizontal steel strip, punctuated at regular intervals by electrical outlets, became a compositional feature of the clean-lined Douglas fir backsplash.

Fronting the sink and dishwasher island are 7½-foot-high cabinets that shield food preparation from view while maintaining the kitchen's openness.

The architect conceived the house as a group of "day boxes," defining the public zone, and "night boxes," enclosing the most private spaces. In the primary day box, living area, dining area, and kitchen flow together beneath an open, pine-paneled pitched roof. Creating a discrete private box within the larger space, Cutler clustered the powder room, the linen closet, the refrigerator, and stereo equipment within a freestanding structure with a glass-shelved, track-lit display cabinet.

Generously scaled windows and the unabashed simplicity of the forms and materials defer to the landscape while also providing an interior backdrop for the clients' collection of Abstract Expressionist paintings and sculpture.

Architect: *James Cutler Architects*
General Contractor: *Pete Crocker*
Sources: *Verdi Aquamarine honed granite (countertops); Olson Sheet Metal (custom lighting); Dacor (range and ovens); Elkay (sink); Chicago (faucets); Amana (refrigerator); Tipke (custom hardware fabrication)*



REJUVENATING A 1930s BATHROOM WITH MORE DAYLIGHT AND OPEN SPACE

After an earthquake damaged their Tudor-style bungalow, two Los Angeles women hired architect J. M. Reynolds to reinforce the foundation, rebuild the chimney, and refine the front entrance and master bath. Within the confines of a tight budget, Reynolds added a gracious entry foyer and rendered the small, dim 1930s bathroom bright and visually expansive.

Virtually unchanged since its construction, the dark bathroom had reddish-brown tiles and a tiny window. To create a luminous south-facing wall, the architect gutted the seven-by-eight-foot room, reoriented the fixture locations, and replaced the solid exterior wall with glass block, punctuated by a clear, operable window.

To further enhance the sense of openness, Reynolds sank the bathtub into the crawl space, thus eliminating the obstruction of a high tub rim. Though the room's actual dimensions remained unchanged, Reynolds cleverly maximized floor space by cantilevering his custom-designed cherry-wood vanity (topped with black granite) over the ceramic-tile floor.

The vanity—with its rich palette and sculptural contours—was designed with the dignified elegance of living-room furniture. By lining the foyer with similar cherry-wood cabinetry, the architect helped restore unity and solidity to this earthquake-shaken house.

Architect: *The Office of J. M Reynolds Architects*
General Contractor: *Terra Tek Construction*
Sources: *PPG (glass block); AFG (shower door); Halo (downlights); Absolute Black Granite (countertop); Dal Tile (floor and wall tiles); Kohler (shower fixtures and faucets)*

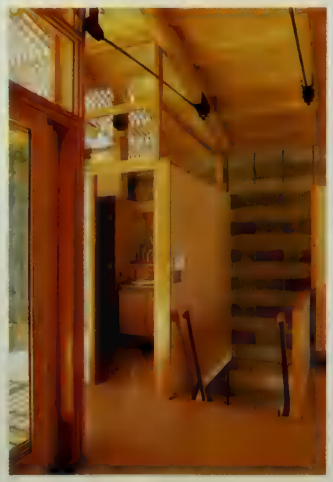


SAN FRANCISCO ARTS FOUNDATION WITH GUEST QUARTERS AND PHOTO STUDIO



Drawing on a Japanese-influenced, minimalist aesthetic, Pfau Architecture created a tranquil, clean-lined building for a San Francisco couple's photo studio and arts foundation. The modest 1,600-square-foot structure needed simple, flexible spaces that could double as guest quarters.

With an elegant economy of means, the architect used common-place materials in standard modules—maple plywood sheets and integrally colored concrete masonry blocks—to form open yet ordered, light-filled spaces. (With Zenlike precision, even the shower's black ceramic tiles were laid out so that no piece had to be cut.)



To enhance spatial flow, glass panels separate opaque walls from the open roof structure, ushering daylight into enclosed spaces. Light also diffuses into the bathroom through a shoji screen–like wall of sandblasted glass. Just as the walls visually stand free from the ceiling, the countertops, custom-designed with wide reveals, and the wall-mounted toilet share a floating quality.

Architect: *Pfau Architecture*
General Contractor: *Caletti Construction*
Sources: *Dorn Braci (faucet and showerhead); Kohler (sink); Duravit (toilet); Cal Stone (concrete masonry units); D-Line (locksets)*

A BEACH HOUSE KITCHEN WITH HAMMERED, ACID-WASHED COPPER DETAILING

Before completing an 11,000-square-foot home for a developer client, architect Barry Gehl had to convert a beachside shack on the property into a future guest house that could also house the client's family of five in the interim. Taking cues from his client's request for "as many natural materials as possible," Gehl says he "attempted to bring the exterior into the interior."

Echoing an exterior of weathered-cedar shingles, fieldstone wainscoting, slate roofing, and copper gutters, the kitchen's interior features such rugged materials as recycled fir beams and columns (sandblasted and lightly whitewashed), acid-washed copper hardware and cabinet doors (custom-made and inset with patterned glass), and limestone countertops. Gehl selected four-inch-thick slabs of chisel-edged bluestone to visually anchor the ends of the island.

Seeking a "timeless" quality, Gehl eclectically combined the modern industrial aesthetic of stainless steel—on the refrigerator, exhaust hood, oven doors, sink, and towel and utensil racks—with conscious references to old-world craft. The hammered, acid-washed, and riveted copper hardware, for example, was custom-forged to recall the art of the blacksmith.

Architect: *Barry Gehl Architects*
General Contractor: *Randy Kent and Larry Gladstone*
Sources: *Pella (windows); Thermador (stove and oven); Sub-Zero (refrigerator); Franke (sink); Lightolier (downlights); Artemide (task lighting); Lutron (lighting controls); Randy Kent and Larry Gladstone (custom cabinetry); The Tinman (copper cladding); Paul Casey, Metalsmith (custom hardware); Tuxedo Limestone (countertops)*





COLORADO ARCHITECT'S ASPEN HOME IN UNUSUALLY UPSCALE TRAILER PARK

In chic Aspen, Colorado, where the average house is valued at nearly $2 million, the formerly city-owned trailer park—with spectacular mountain views—may be one of the last affordable neighborhoods in town. Within the confines of a typical 44-by-70-foot lot, architect Scott Landenau of Studio B Architects re-envisioned trailer typology when he replaced his family's mobile home with a house of his own design.

He describes this project as "an exercise in the honesty of detailing, structure, materials, and transitions." Creating a collage of colors and textures on the exterior, Landenau experimented with standard unrefined materials—corrugated tin and plastic siding, maple-veneer plywood walls, concrete countertops and floors, and commercial-grade trusses –applied in sometimes unorthodox ways.

In contrast to the house's low-brow ancestor, the double-wide trailer, Landenau designed an open shed roof with exposed steel-and-wood trusses. To maintain spatial continuity, no partitions reach truss height, even in the bathroom, which is partially enclosed by translucent, sanded Plexiglas. Soundproofing is not a major concern, explains Landenau, who was happy just to leave behind the flimsiness and drafts of his old traditional trailer.

Architect: *Studio B Architects*
General Contractor: *Tanner Construction—Ron Tanner*
Sources: *Kitchen—Jenn-Air (appliances); Franke (sink); Hansgrohe (faucets); FSB (hardware); Flos, Piperita (wall sconces); Artemide (floor lights); Tolomeo (task lights); Lutron (lighting controls)*
Bathroom—Porcher (water closet); Kohler (sinks); Hansgrohe (shower fittings)





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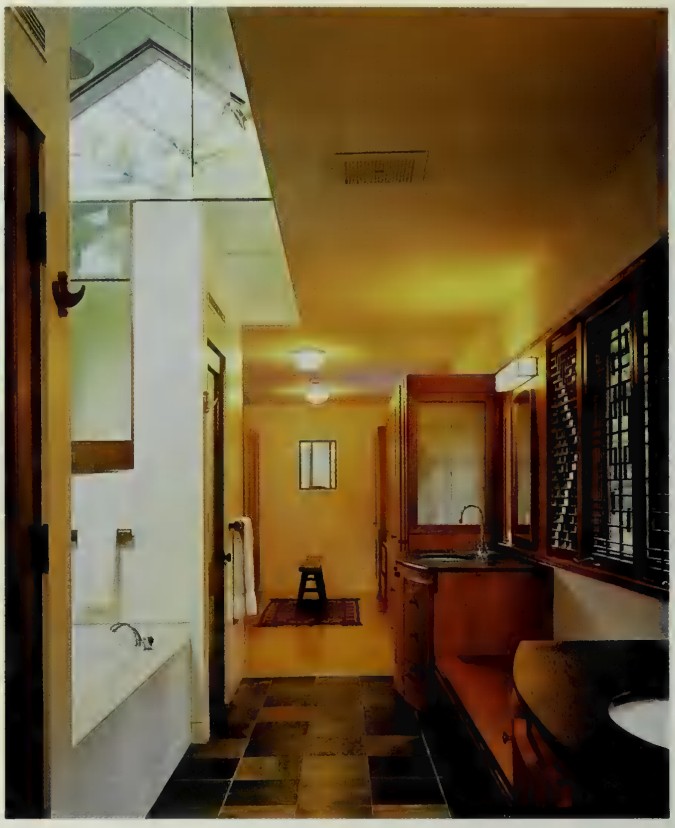
MASTER BATH FOR A MASSACHUSETTS HOME NESTLED AMONG TREES

When a couple in the arts hired architect Michael Rosenfeld to expand their rural Massachusetts home, they made some unusual requests: the new 14,000-square-foot house should include an underground basketball court and a meditation room, along with a pool room, guest quarters, and spacious offices with secretarial suites for each of them. Though the house would be large, the owners wanted it to remain intimate, with the feel of a "small stone cottage."

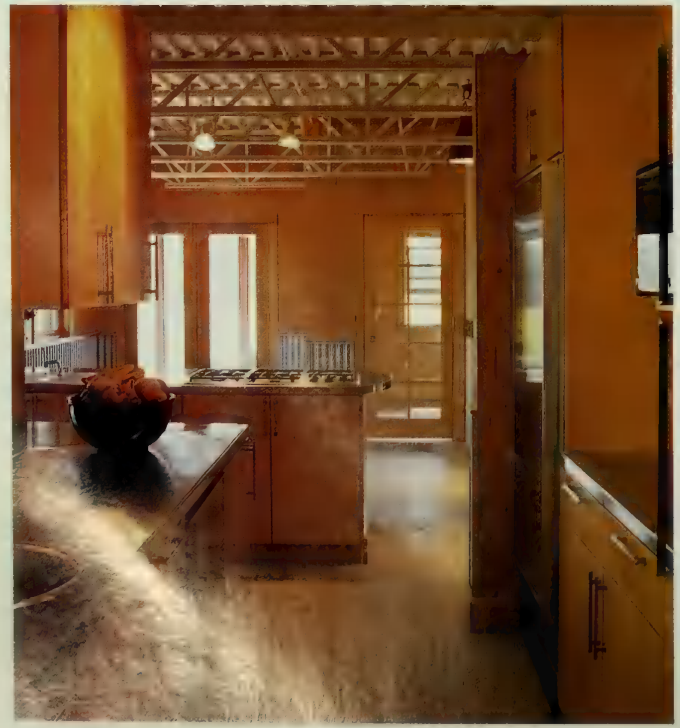
Seeking a rustic quality, Rosenfeld made extensive use of natural stone and wood surfaces—slate with redwood, cedar, and mahogany. Responding to the surrounding forest, the architect focused the sequence of interior spaces on views of three particularly majestic trees.

Even from the master bathroom, views upward through a peaked window reveal the top of a great maple. Between paired sinks with slate counters, other panoramas of the woods appear through a Chinese-influenced mahogany window screen, custom-designed by the architect. A cathedral ceiling soars above the whirlpool tub—giving the simple experience of bathing an enhanced sense of relaxation and luxury. Enticing partial views from the tub open themselves fully during the brief journey from master bath to dressing area and bedroom.

Architect: *The Office of Michael Rosenfeld*
General Contractor: *Thoughtforms Corporation*
Sources: *Little Harbor (windows); Truth (locksets); Baldwin (hinges); European (cabinet hardware); Kohler (sink, faucet, toilet, and tub); Harrington (hand shower and mixing valve)*



KITCHEN WITH HUMBLE MATERIALS FOR FAMILY AND PETS IN RURAL MICHIGAN



Honest, humble materials were the clear choice for the new home of a southwest Michigan family with 10 household pets and a passion for their rural surroundings. For the interior of this red, barnlike house, architects Reckley & Associates created a tawny palette with concrete floors (which are radiant-heated and ground to reveal aggregate), maple-plywood walls with galvanized-steel wainscoting, and open-web joists with exposed plumbing lines.

Architect: *Reckley & Associates*
General Contractor: *JWK Construction*
Sources: *Caradco (windows); Häfele (cabinet hardware); D'Ac (pendant lighting); Halo (track lighting); Kroin (faucets); Kohler (porcelain sink); Kindred (stainless-steel sink); Gaggenau (appliances)*



Architect: Michael Leclere, Associates • Project: Paradiso, Caesar's Palace, Las Vegas • Photographer: O'Gara/Bissell



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CHICAGO TOWNHOUSE REMODELED FOR MODERNIST GRAPHIC DESIGNER

A graphic designer and former race-car driver enlisted Wheeler Kearns Architects to transform his Chicago townhouse into a series of simple elegant spaces: a foil for his museum-quality collection of Modern furniture. Most of the three-story house's original Victorian-era detailing had been stripped away long ago—offering a virtually clean slate for new interiors.

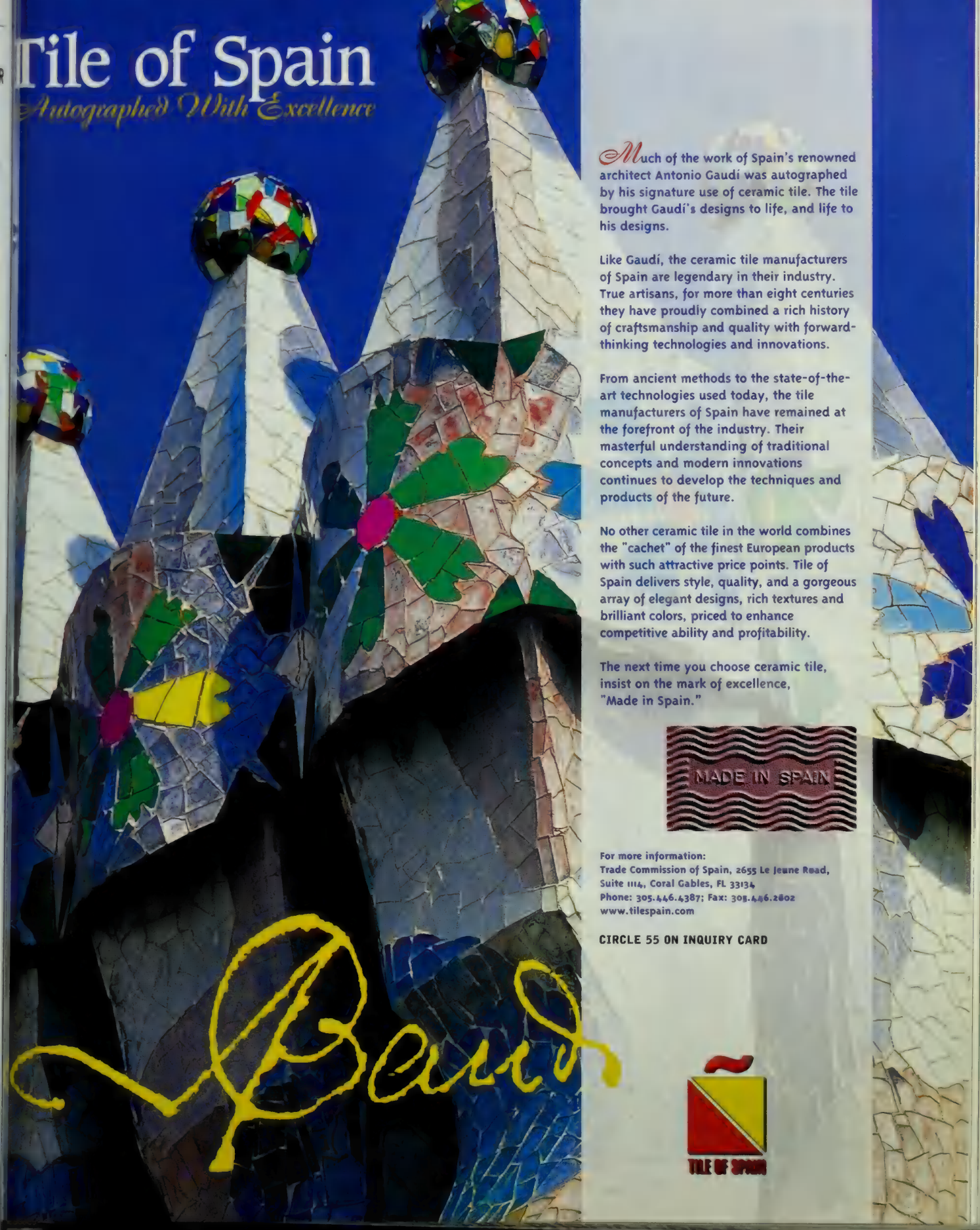
In the kitchen, Wheeler Kearns inserted a steel-framed grid of windows facing the garden. Custom cabinetry combines stainless-steel appliances and counters with a wall of cabinets faced in African ribbed-mahogany veneer.

In the bathroom, custom steelwork and mahogany continue the themes established in the kitchen—but here they are played against a slate floor, in contrast to the kitchen's maple flooring.



Architect: *Wheeler Kearns Architects*
General Contractor: *H & R Johnson*
Sources: *Kitchen—Hope's Architectural Products Inc. (window, lockset, and hinges); Paoli Woodworking (custom cabinetry); Sub-Zero (refrigerator, freezer, and pull-out drawers); Gaggenau (cooktop, oven, and dishwasher); Hansa (faucet)*
Bath—Speakman (showerhead); Kroin (faucets); Kohler (toilet); Sloan (concealed toilet flush valve); Grohe (shower valve and volume control)




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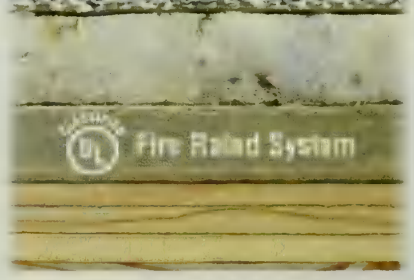
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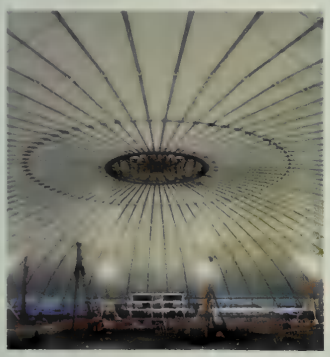
This month's product pages focus on commercial and residential roofing products and projects from around the world. Architects, roofing contractors, and roofing consultants have many more options nowadays, whether they're working on new construction or restoration. From fire-protected shakes and shingles to solutions for leaky roofs, manufacturers are providing new answers to age-old problems. For more information on the roofing industry, check out the National Roofing Contractors Association's Annual Convention and Exhibit in Phoenix, February 7–10 (www.roofonline.org). —*Elana Frankel, Products Editor*

MEMBRANE ROOF WILL HELP MOVE ENGLAND INTO THE NEXT MILLENNIUM



The Millennium Dome in Greenwich, England, was created by the Richard Rogers Partnership and Bath-based engineer Buro Happold as an exhibition and amusement center that will help usher in the new millennium. Part of a larger project that will eventually include 14 themed installations, the 920,640-square-foot dome itself has already seen its share of controversy.

One of the disputes over the dome had to do with its exterior membrane. The design team had originally planned to use a German PVC product for the skin. But various environmental groups, including Greenpeace, protested, contending that the PVC would pollute the environment by off-gassing. Instead, the dome was covered with Birdair's tensioned membrane, fabric panels made from fiberglass coated with Teflon polytetrafluoroethylene (PTFE). The tensioned membrane has none of the environmental hazards associated with PVC roofs, is projected to last for 25 years, and is also structurally sound.



Birdair's roof panels push England's Millennium Dome into the future.

Tensioned membranes such as the Millennium Dome's are made from fiberglass for mechanical strength and have a PTFE coating to ensure weather resistance. Fibers are drawn from hot melted glass through platinum dies into continuous filaments, which are then twisted and plied into yarn bundles. The yarns are woven into a wide structural fabric that is finally coated with PTFE. In tests and for projects in Colorado and Saudi Arabia, the PTFE coating can withstand temperatures ranging from -100° to 450° F and is immune to UV radiation. The fiberglass yarns have an ultimate tensile strength of 500,000 pounds per square inch (psi) and a modulus of elasticity of 10.5 x 10^6; steel, in comparison, rates at 29 x 10^6 psi.

The Millennium Dome's membrane, which consists of 1.72 million square feet of exterior membrane and interior liner, took 12 weeks to install. It has 12 structural steel masts, each 328 feet high, with some 43½ miles of cablenet. Each mast rests on a 33-foot, four-pronged pyramid structure that distributes the structure's weight over the concrete foundation.

800/622-2246. Birdair, Amherst, N.Y. **CIRCLE 200**

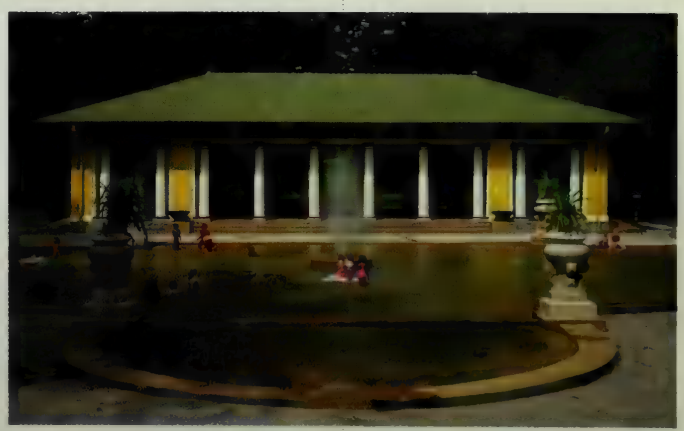
HISTORICALLY ACCURATE ROOF TILES HELP RESTORE A POOL PAVILION

In 1867, a retired merchant named Henry Shaw donated 200 acres of his estate to the people of St. Louis. From that parcel of land, a Victorian park was created. Today, Tower Grove Park is being restored to fulfill what the current park director John Karel calls "its original intent: to be a magnet for the citizens of St. Louis."

One of Tower Grove's most prominent buildings is the 84-year-old Romanesque Pool Pavilion, which frames the park's main long view. When it came time to restore the pavilion, John Karel and the project's principal restoration architect, Philip Cotton, worked to maintain—and create—historical accuracy. "Tower Grove is a National Historic Landmark," says Cotton. "So there was no question that the Pool Pavilion had to be restored to its original materials. Early photographs clearly show the design of the original tiles and the ridge pieces."

The 4,500-square-foot roof was restored with Ludowici roof tiles that match those of the 1914 original. First produced in Italy in the 1500s, Ludowici tiles were used in historical and cultural centers across Europe. In 1890, Ludowici began producing its tiles at a facility in New Lexington, Ohio. "Even though there was no record that the original tiles on the Pool Pavilion were Ludowici," says Cotton, "we think it's likely because there is a lot of Ludowici roof tile in St. Louis, including the immediate neighborhood of the park." The quality of the clays has not changed over the past 100 years, although the firing process has improved.

At some point in the pavilion's history, the original tile roof had been torn off and replaced with asphalt shingles. No one knows why. According to Cotton, that doesn't matter. "Our job was to restore the Pool Pavilion to its 1914 grandeur."



Tower Grove's Pool Pavilion roof was recently restored with Ludowici tiles.

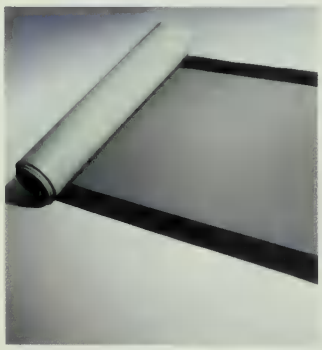
610/341-7328. Ludowici, Valley Forge, Pa. **CIRCLE 201**

ROOFING PRODUCTS FOR A WIDE VARIETY OF USES

The products highlighted on this page range from fire-resistant shakes to slate-like shingles, for such projects as a leaking 129,000-square-foot roof and roofs for a residential development in California. Whatever the use, each of these products successfully fulfills a specific roofing need.

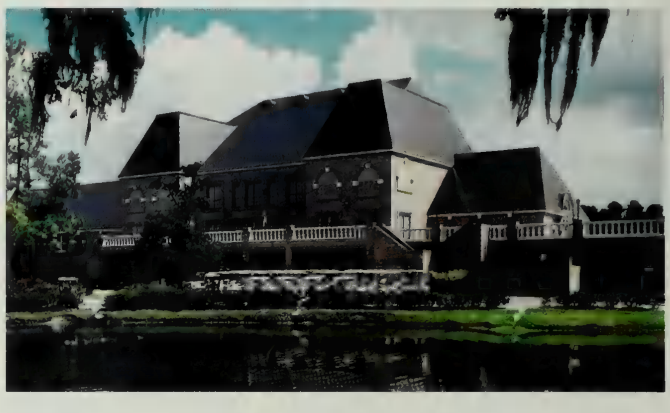
▼ Heat-weldable walkway

Stevens Roofing's hot-air-weldable thermoplastic polyolefin (TPO) walkway pad with welding tabs minimizes abrasion and mechanical damage caused by rooftop traffic. It features a 120-mil membrane with 29 inches of skid-resistant surface. 877/TPO-ROOF. Stevens Roofing, a division of JPS Elastomerics, Holyoke, Mass. **CIRCLE 203**



► Steel shingles

Centria's steel shingle series for the light commercial building market includes two lines: AstonWood, which provides the appearance of wood shingles, and StoneCrest, which offers the look of slate (shown) or copper. The shingles are manufactured from G90 galvanized steel and protected by Kynar 500 and Hylar 5000 coatings. They are covered by a 20-year warranty for finish integrity, chalk, and fade. 800/759-7474. Centria, Pittsburgh. **CIRCLE 202**





▲ Fixing a leaky roof

Arctic Cat's manufacturing facility in Thief River Falls, Minnesota, had a 129,000-square-foot metal roof that was leaking. Versico produced a special-width sheet of Versiweld Premier, its thermoplastic polyolefin, to facilitate the attachment of the membrane to the roof's center metal purlins and stop the leaks. 800/992-7663. Versico, Akron, Ohio. **CIRCLE 204**

▼ Fire-protected shakes

For the 89 homes in California's Palomar Vista Estates, architect David Kaech wanted visually appealing roofs that were also practical. He chose Celotex Presidential Shakes, which feature 3M's Algae Block Copper Roofing Granule System to help protect against fires, flying sparks, and wind-blown embers. 800/443-4272. Celotex, Tampa, Fla. **CIRCLE 205**



▼ Stadium renewal

To complete the renovation of the 48-year-old Rosenblatt Stadium in Omaha, Boone Brothers Roofing, in coordination with general contractor Weitz Company, installed more than 11,000 square feet of blue Snap-Clad panels manufactured by Petersen Aluminum. The stadium's new press box features peaked metal roof panels with a Pac-Clad protective finish. 800/PAC-CLAD. Petersen Aluminum, Elk Grove Village, Ill. **CIRCLE 206**





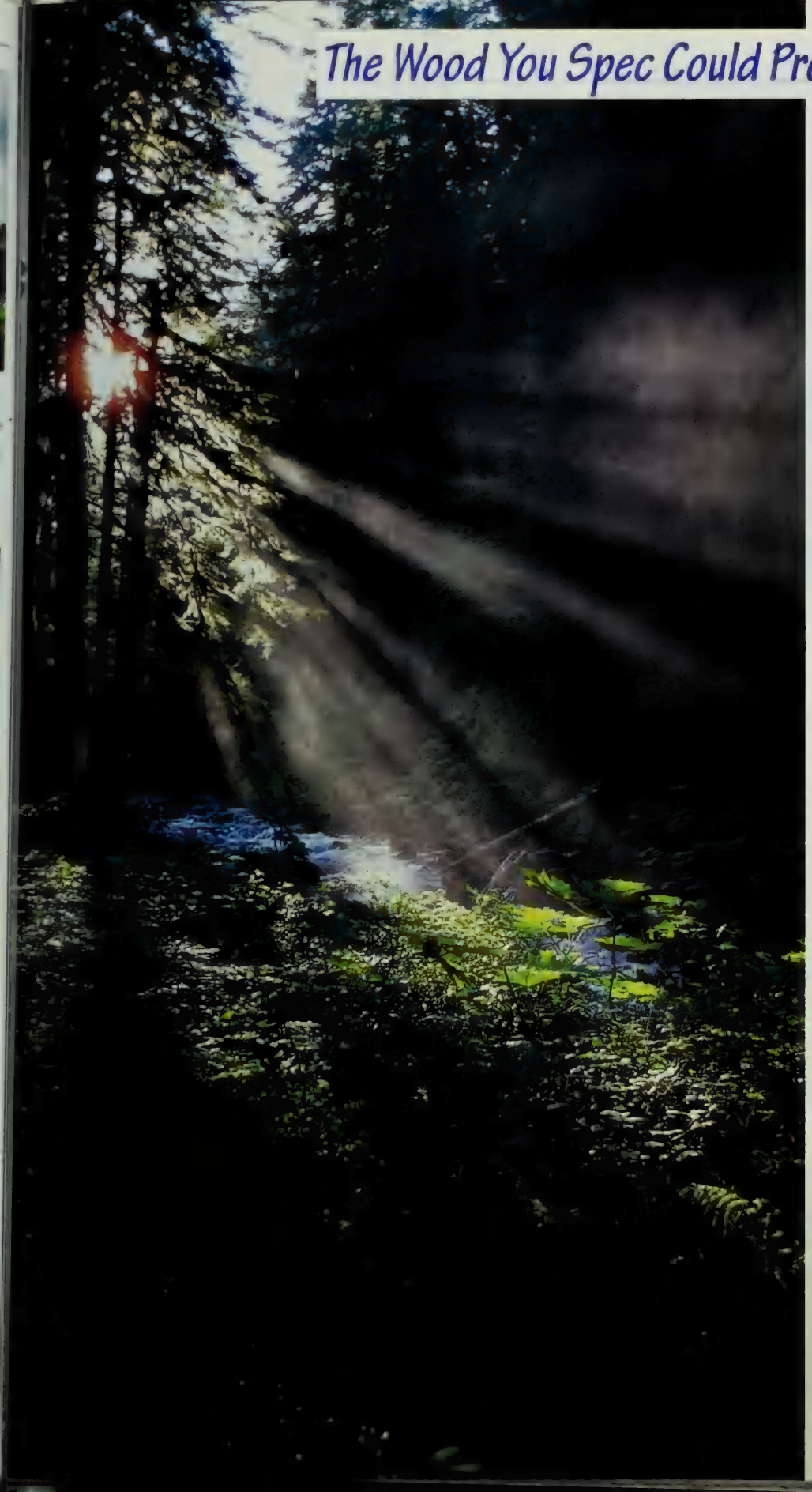
▲ Residential design

Atlas's two new, heavyweight, fiberglass-mat, three-tab shingles for the residential market are Alpine (top), a scalloped, half-rounded shingle, and Matterhorn (bottom), an angular-shaped shingle with a dog-eared pattern. Both shingles are available in five colors. 770/952-1442. Atlas, Atlanta. **CIRCLE 207**

▼ Bowling alley makeover

Indianapolis's Woodland Bowl was retrofitted with an 80,000-square-foot roof from GenFlex. The mechanically attached white PVC roof is energy-efficient and cuts down on cooling costs. For more information, GenFlex has released the GENdisk CD-ROM. 800/443-4272. GenFlex, Maumee, Ohio. **CIRCLE 208**





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PRODUCT BRIEFS

▼ Reclaimed douglas fir

The U.S. brewery of Takara Sake recently renovated a loft in Berkeley, California, to serve as a sake tasting room. To achieve a Zen look, architects from Hisaka & Associates used three heavy timber structures made from G. R. Plume's reclaimed timber. 360/384-2800. G. R. Plume, Ferndale, Wash. **CIRCLE 209**





▲ Rub-a-dub-dub

The Millennium Products project was created by the British Design Council to encourage and promote the country's designers. The Ursula tub, by Jon Barnes and Nicola Regan of the Scottish-based company Submarine, was chosen as a Millennium Product for its innovative use of materials. The elliptical, freestanding, stainless-steel tub will be on view in the Philadelphia Museum of Art's exhibition "Cool Britannia: Recent British Design Selected by Sir Terence Conran" through March 7, 1999. 011/44/141/243-2424. Submarine, Glasgow. **CIRCLE 210**

▼ Commercial flooring

Homespun, a collection of sheet-vinyl flooring from Tarkett, was designed for the health-care market and light commercial installations. The collection includes three patterns—Walden Wood, a hardwood plank; Stamford Tile, a 12-inch octagonal paver; and Stoney Run, a nine-inch quarry tile—in 13 colors. It is available in 12-foot widths. 800/225-6500. Tarkett, Whitewall, Pa. **CIRCLE 211**



▼ Cladded fridge

Born and raised in Buenos Aires, designer Gonzalo Rodriguez settled in the Detroit area to study industrial design at the Center for Creative Studies. His recent collection, shown at the International Contemporary Furniture Fair, included a series of bentwood and metal furniture as well as a refrigerator clad with woven aluminum strips (below). Arrangements can be made to customize any surface with his woven aluminum designs. 248/543-3774. Gonzalo Rodriguez, Ferndale, Mich. **CIRCLE 212**





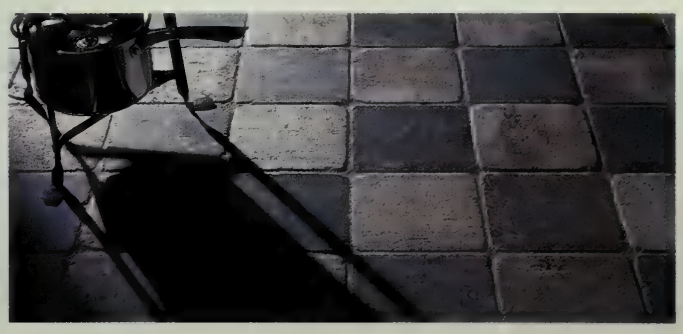
▲ Curtain call

Artifact, Michael Graves's collection of curtain hardware for Blome, includes curtain rods, finials, brackets and rings, holdbacks, swag holders, furniture knobs, drawer pulls, coat hooks, and stair rods. Brushed brass, brushed nickel, Tuscan bronze, antique bronze, and mirrored black finishes are available. 800/875-0042. Blome, Secaucus, N.J. **CIRCLE 213**

► Mobile furniture

Box Office by Design is a new collection of wooden furniture from the Texas-based company Smart Furniture. The desks, computer tables, bookcases, and entertainment centers are available in two styles, traditional and contemporary, and two finishes, cherry wood and clear maple. The lightweight and compact pieces can be assembled and disassembled without tools. In company tests, the furniture withstood 1,000 assembles and disassembles without degradation of performance, making it a good choice for areas where furniture layouts will be changed frequently. 888/269-6788. Smart Furniture, Arlington, Tex. **CIRCLE 214**





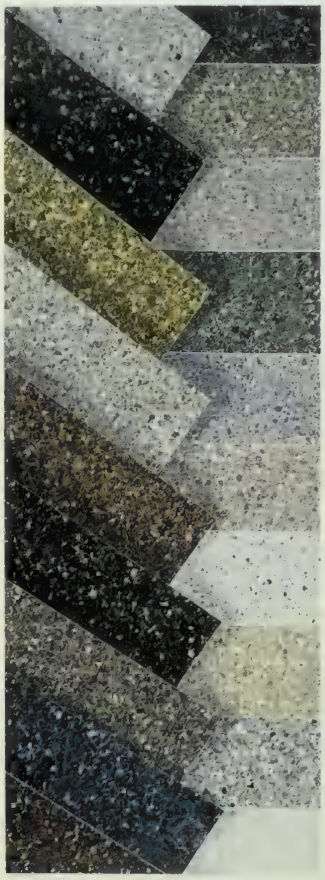
◄ Distressed tiles

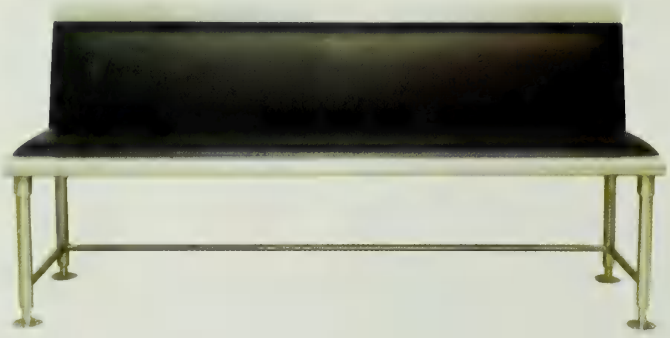
Precut Vix Blue and refined limestone tiles from Paris Ceramics have been slowly turned with sand in a large mixer to create an aged look. This type of treatment, available for most Paris Ceramic limestone, distresses the edges and surfaces of each piece and helps to bolster the natural grip of the stone. 203/552-9658. Paris Ceramics, Greenwich, Conn. **CIRCLE 215**

PRODUCT BRIEFS

▼ Contract applications

Mannington's new base-grade commercial inlaid sheet flooring, called Magna, features a natural granite look. Magna has a felt backing and is available in six-foot widths and a variety of colors. The flooring complies with ASTM standard F-1303, type II, grade 1, class A specifications. 800/241-2262. Mannington, Salem, N.J. **CIRCLE 216**





▲ Mobile seating

The name of Yves Claude Arbour's furniture collection, Kanso, is Japanese for "simple." Made from stainless steel and black napa leather, the bench (above) is available with wheels. Also available in the line are a utility cart with a wood, granite, or marble top; a rolling bed; and a variety of tables. 212/725-7616. Yves Claude Design, New York City. **CIRCLE 217**

▼ Wireless wonders

JVC's professional computer products division has expanded its Vipslan-10 wireless LAN system to include three enhanced interface modules: ceiling- and wall-mounted transmitter network hubs (shown), and a computer transceiver. 800/488-4353. JVC, Cypress, Calif. **CIRCLE 219**





▲ Ceiling system

The Luxalon limited-access metal ceiling system by Hunter Douglas can be made of aluminum or steel for protection and security. Panels are available in 12-inch widths and in lengths of up to six feet. 800/366-4327. Hunter Douglas, Norcross, Ga. **CIRCLE 220**

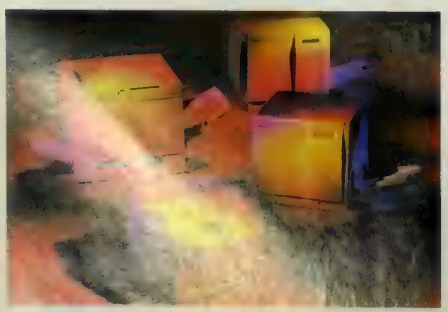
▼ Walk the plank

Kentucky Wood Floors/Kentucky Millwork has introduced Brazilian Ash, a new species that is available in ⅜-by-three-inch planks with a factory-applied urethane finish for no-wax maintenance. With its rich blond color, the planks can be used in a variety of residential and commercial applications. The company's Web site, www.kentuckywood.com, provides dealer information. 502/451-6024. Kentucky Wood Floors/Kentucky Millwork, Louisville, Ky. **CIRCLE 218**



▼ More print for your money

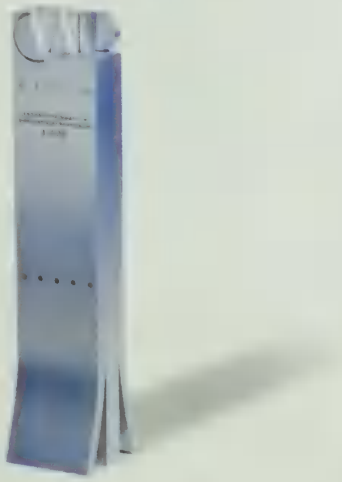
Tektronix has introduced four new color printers to its Phaser line that offer a broad range of prices, target applications, and technologies. The new printers—the network-ready 740; the reasonably priced, color-capable 740L; the solid-ink color printer 840; and the 11-by-17-inch color laser printer 780—all come standard with built-in Ethernet connections, Adobe PostScript 3, and PCL language for desktop, network, and application compatibility. 800/835-6100. Tektronix, Wilsonville, Oreg. **CIRCLE 221**



► CFC-free panels

Nor-Lake has converted to HFCs in its foamed-in-place insulated panel manufacturing process. The polyurethane insulation used in all Nor-Lake walk-in panels will use HFC 134A, which is CFC-free and has zero ozone depletion, thanks to a partnership with the Minneapolis-based Foam Enterprises. The result of the new HFC 134A expanded foamed-in-place process is a full four-inch walk-in cooler of freezer room panel with an R-value of up to 30 in -30° C applications. 800/477-5253. Nor-Lake, Hudson, Wis. **CIRCLE 222**





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PRODUCT BRIEFS

▼ Anchors away!

KDI Paragon's Quickset is a newly patented Taper-Lock anchor system that makes installing and removing starting platforms in pools easier, eliminating the need for tools. Upgrade kits are available. 914/452-5500. KDI Paragon, LaGrangeville, N.Y. **CIRCLE 223**





◄ High-security locks

Mas-Hamilton's PowerLever door locks are available in black with a chrome lever (shown); chrome with a chrome lever; and brass with a brass lever. The Model 1000 provides keyless electronic access for 20 users; the 2000 is for 40 users and provides 450 date/time–stamped audit events; and the 3000 handles 96 users, 945 date/time–stamped audit events, and time zone/access schedules. 800/950-4744. Mas-Hamilton, Lexington, Ky. **CIRCLE 224**

► Video surveillance

The Silent Witness model SWC40 is a surveillance system that includes a black-and-white video camera, digital image storage that records more than 90 minutes of video or 1,140 still images, video motion detection, and an alarm interface in a compact, fiberglass-reinforced, polycarbonate, vandal-proof enclosure. It measures 4¾ inches by 4½ inches by 3½ inches. 888/BUY-CCTV. Silent Witness, Surrey, B.C., Can. **CIRCLE 225**





▲ Elevator insides

CabForms, an elevator interior package from Forms + Surfaces, is available in stainless steel, bronze, and aluminum with satin, polished abraded, embossed, etched, calendered, and stamped finishes. Complete packages include panels, frames, handrails, base, and ceiling. For more information, see the company's Web site at www.forms-surfaces.com. 800/451-0410. Forms + Surfaces, Carpinteria, Calif. **CIRCLE 226**

Wood Decks That Are Fire Retardant.

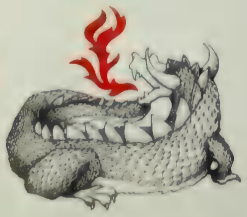


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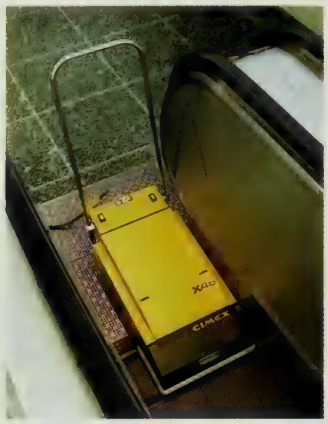
International Brotherhood of Electrical Workers • National Electrical Contractors Association
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PRODUCTBRIEFS

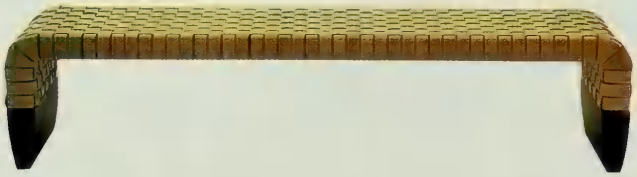
► Escalator cleaner

The Cimex escalator cleaner model X46 from Kee Industrial Products is designed to provide a fast (400 rubs per minute) and thorough brushing and simultaneous vacuum cleaning of all types of escalator treads and moving sidewalks. A nylon bristle brush is available for routine maintenance; a nylon bristle with abrasive carbides is available for initial deep-cleaning operations. 800/525-2094. Kee Industrial Products, Buffalo, N.Y. **CIRCLE 227**



▼ Bench-mark design

The original designs for the Panca bench, created by Guglielmo Urlich in 1934, are in the collection of New York's Museum of Modern Art. But the current license for the design belongs to the company M2L, which has recently reissued the bench. The re-edition, made of wenge wood covered with interlaced coach hide, measures 71 inches wide by 16 inches deep by 16 inches high. 800/319-8222. M2L, New York City. **CIRCLE 229**



▼ Smoking shelters

When St. Joseph Mercy Hospital in Ann Arbor, Michigan, needed a place for smokers, Duo-Guard provided a solution: an enclosed area for people who haven't quit the nicotine habit. With heaters, exhaust systems, benches, doors, lights, and air-conditioning, the smoking shelter provides a comfortable space away from smoke-free environments. The eight-by-10-foot structure, made from an aluminum frame and translucent bronze, can accommodate approximately 10 smokers. Today, more than 1,800 shelters are in use outside commercial, health-care, and government facilities. 800/872-4404. Duo-Guard, Canton, Mich. **CIRCLE 228**



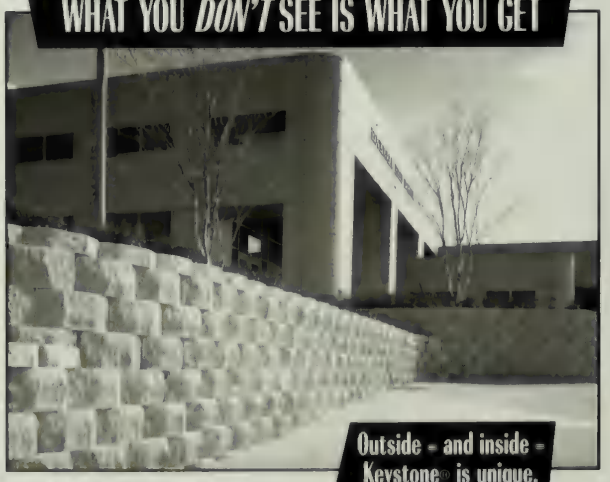
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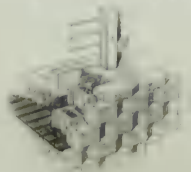
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PRODUCT LITERATURE

MRI enclosures
Lindgren's literature on Enviro-Shield shows how to protect MRI systems from magnetic interference. 630/307-7200. Lindgren, Glendale Heights, Ill. **CIRCLE 230**

Digital light control
Prescolite's brochure features the DiCon digital light control. 510/562-3500. Prescolite, San Leandro, Calif. **CIRCLE 231**

Cantilever racks
A new brochure from Paltier highlights cold-formed and structural cantilever racks. 800/323-0096. Paltier, Michigan City, Ind. **CIRCLE 232**

Organizing walls
A pamphlet on the Max/Wall features the chases that hold electrical and plumbing fixtures. 920/793-1121. Fisher Hamilton, Two Rivers, Wis. **CIRCLE 233**

Daylighting information
Guardian 275 has a new brochure on translucent daylighting. 888/SKY-COST. Guardian 275, Wausau, Wis. **CIRCLE 234**

Electronic catalog
Astrup's CD-ROM for Windows and Mac highlights canopies, marine fabrics, and awnings. 216/696-2820. Astrup, Cleveland. **CIRCLE 235**

MRI enclosures
TVS's controlled access unit for linen and waste chute systems is described in the company's new literature. 512/863-7549. TVS, Georgetown, Tex. **CIRCLE 236**

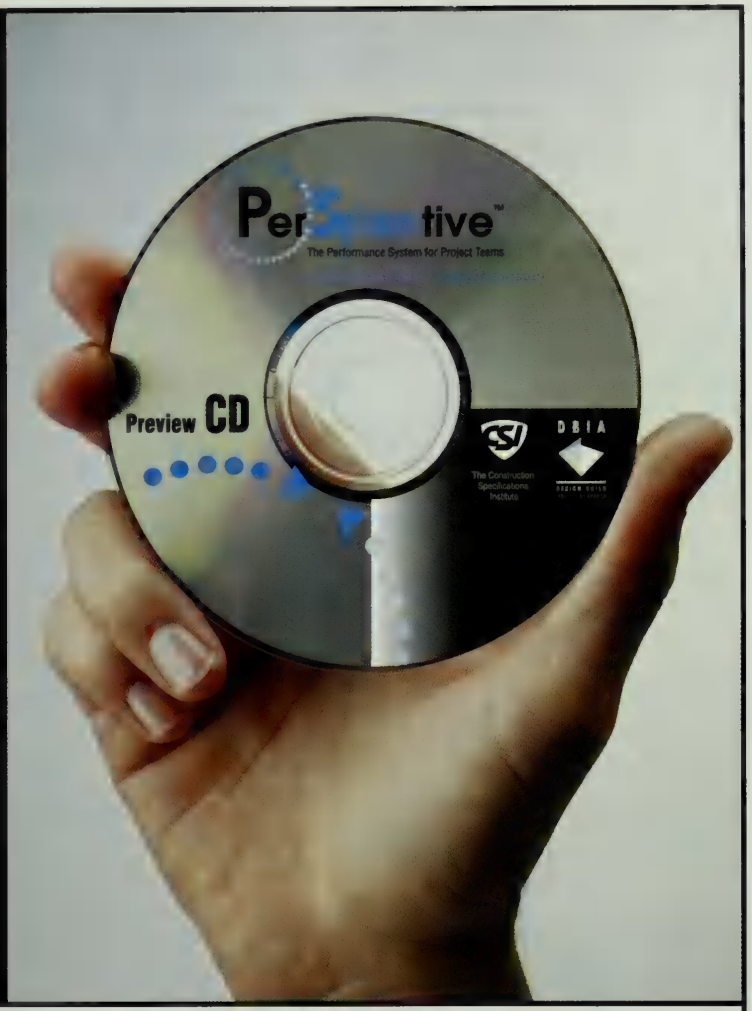
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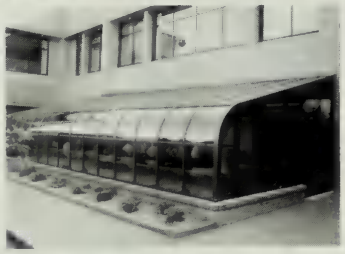
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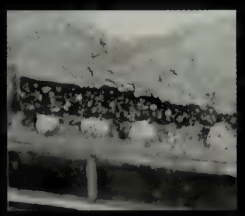
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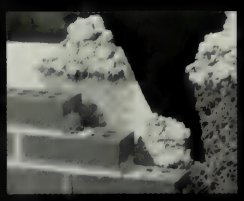
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PRODUCT LITERATURE

LRFD manual

The "Load and Resistance Factor Design Manual for Engineered Wood Construction" includes both design information and construction examples. 504/443-4464. Southern Pine Council, Kenner, La. **CIRCLE 237**

Safety flooring choices

Altro Floors' new catalog features information on safety flooring products, color selections, and warranties. 800/565-4658. Altro, Mississauga, Ont., Can. **CIRCLE 238**

Hardwood products

The new guide from the Hardwood Manufacturers Association (HMA), "Hardwood Expressions," provides details on solid hardwood flooring, cabinetry, furniture, and woodwork. 800/373-WOOD. HMA, Pittsburgh. **CIRCLE 239**

Dealer-architect collaboration

Outlook, Weather Shield's newsletter, has an insert called "Architectural Insights" that focuses on strengthening the relationship between dealers and architects. 715/748-2100. Weather Shield, Medford, Wis. **CIRCLE 240**

Redwood products

The new architectural guide from the California Redwood Association is an eight-page color booklet that provides technical information for specifiers of redwood lumber. 415/382-0662. California Redwood Association, Novato, Calif. **CIRCLE 241**

Fiberglass insulation

CertainTeed's complete line of fiberglass insulation products for commercial applications is described in the company's new 16-page color catalog. 800/723-4866. CertainTeed, Valley Forge, Pa. **CIRCLE 242**

No-glare glass coating

Viracon Solarscreen 50, a new coated-laminate glass product that minimizes glare and solar heat gain, is detailed in literature sheets available from the company. 800/533-2080. Viracon, Owatonna, Minn. **CIRCLE 243**



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AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

ANSWERS

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1. The fundamental components of a flashing system are the base flashing, which continues the roofing membrane that is applied separately; and the various sheet metal elements, including cap flashing or counterflashing, copings, edge flashings, expansion joints, and scuppers. All these parts serve specific purposes and deserve equal design consideration.

2. The major types of sheet metal flashing materials are aluminum, copper, lead, stainless steel, Monel (a nickel and copper alloy), steel, and zinc alloy. Galvanized steel is used most often because it is easy to work with, bends easily, and is less expensive than other materials. Copper is likely to last the longest, but it is expensive and its water run-off stains many building materials, including concrete and stone. Which metal is selected also depends on cost, tensile strength (or stiffness), application details, coefficient of expansion, and compatibility with the base membrane.

3. To accommodate dimensional changes, the architect should specify materials that expand at similar rates or build some flexibility into the design. Two ways to do this are to fasten the laps, usually with solder, so that the system moves as a whole; or to design each joint as an individual expansion control system. If the latter method is used, the metal must adequately lap at the joints—at least four inches—to provide room for movement. Cover and backer plates require more installation time but effectively shield lap joints where water leaks often occur. High-performance, elastomeric caulk also helps keep out water. Metal flashings must be large enough to do the job but small enough to prevent unnecessary movement.

4. Most roof problems are due to water leaking in and around the perimeter and at corners or junctions in the roof plane. Well-known trouble spots are perimeters, non-wall-supported deck junctions, and parapet walls. To avoid these problems, architects must think through the details three-dimensionally. Perspective drawings help architects think through the detailing at corners and transitions. Another cause of roof leaks is poor maintenance. Roofs should be inspected after major storms, heavy winds, and during and after construction.

5. Understanding what lies beneath the flashing determines the quality of the job. The roof deck and the flashing systems may be adequate, but the deck may have poor nail-retention properties. As a result, the flashing will pull out under high winds, temperature extremes, or other stresses. Wood blocking should be of adequate thickness and height to receive nails for both the roofing membrane and the flashing. Details, such as cants and crickets, should be securely anchored as well.

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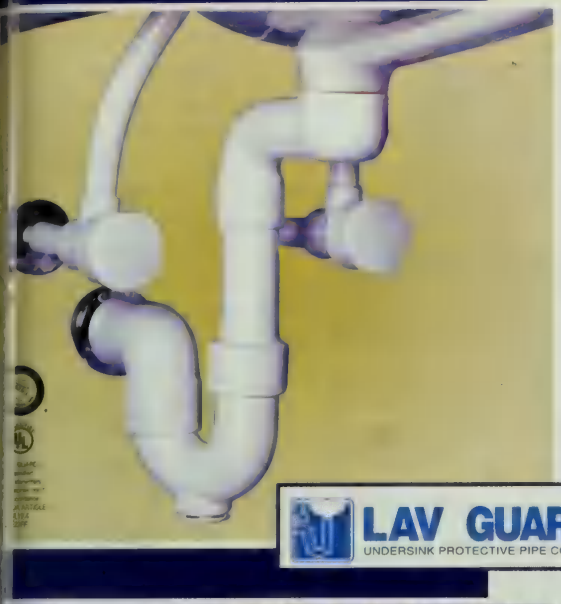
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HOUSES AS PRODUCTS *continued from page 117*

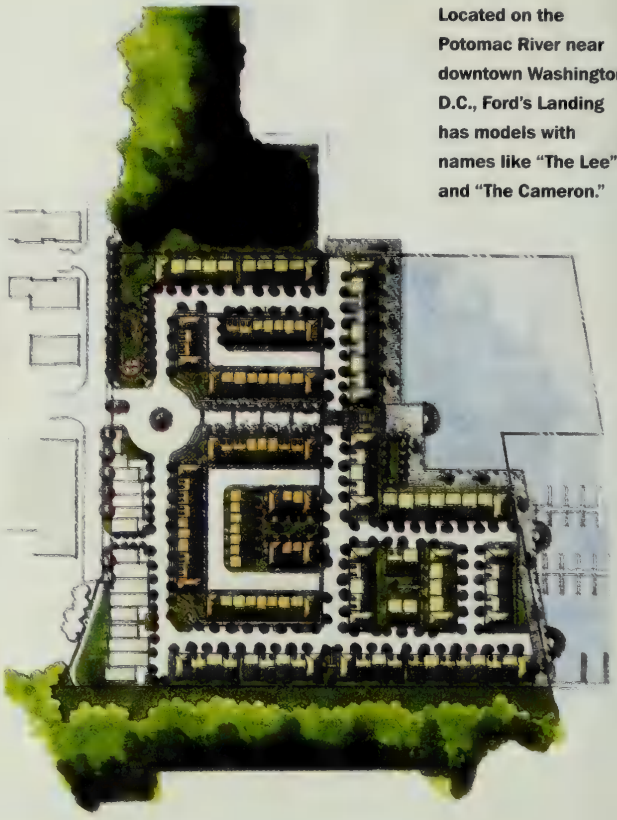
product for the better. Hundreds of serious architects work nearly exclusively at providing services to merchant builders. They're serious, skilled, and not very different from other architects. They are mindful of the lessons of form taught in architecture school and affected by the cult of Corbu, just like their peers.

One of these architects is Aram Bassenian, AIA, of Bassenian-Lagoni Architects in Newport Beach, California. He sees the schism between the work he does and the values of the architecture world simply: "You approach things from a business perspective and you catch the wrath of your profession." His architectural training gave him a dual sense of responsibility.

"On the one hand," he explains, "I want to advance the art that I was trained in, and on the other to do my share to better house Americans. Instead of spending a year working on a single high-rise, I can work on hundreds of house plans that will benefit thousands of homeowners. And even if I can't make these houses exactly as I wish, if I can make an adjustment to each one to the positive, by the end of the year I have done a lot of good."

Are these "adjustments to the positive" that Bassenian and others make significant? Many are; in total, they have created the best-housed nation in the history of the world. And it's safe to say that Americans spend a smaller proportion of their incomes for their homes than the citizens of almost any other nation. A few architects who have played by the rules of the industry deserve a lot of credit for all this.

Some of the most dramatic recent improvements in builder housing revolve around lifestyle—the development of distinct home styles and community types for niche markets. Active-adult housing is



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one example; others include condominium communities with recreation centers designed for young people and family-oriented master-planned communities. Despite the potentially negative implications of segregation that these approaches can entail, the people who live in these homes and communities appreciate that they bought not just a home but a way of life.

One of the biggest design challenges of new housing is its stultifying sameness, which so many architects detest. Everyone, even the customer, wishes it were different. Buyers of homes, like buyers of most everything else, want more choice. But not if it means sacrificing the size-for-price equation, or doing something that looks too weird—don't forget there are resale issues when it's time to move on.

Computer technology may help fix this problem by addressing two of the causes of the monotony: the difficulty in getting homebuyers to understand their choices, and the difficulty builders have in keeping track of buyers' selections once they're made. Virtual-reality software can help homebuilders offer three times as many architectural options to customers, and showing beautiful pictures of how each home looks in its various configurations—with the bay window or without, with the home office or the extra bedroom—helps customers to make better choices. But the trend toward increasingly customized spec homes has made managing the job jacket for each house the builder's biggest headache. Computers can help with this too, linking workers in the field with the sales office.

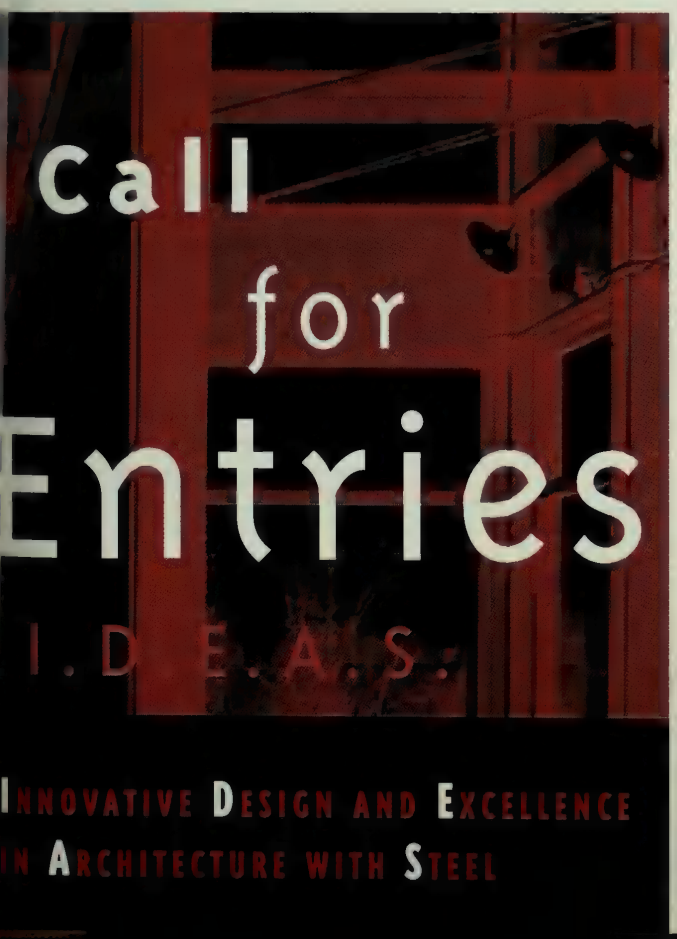
Fast-forward just a year or two, and it's possible to imagine a system where buyers browse through home styles on a computer, manipulate each house in hundreds of ways—from adding rooms to choosing colors—and then issue an electronic order for exactly what they want. The builder will be able to share this information with the 100 or so subcontractors and suppliers involved. That's important since each of these suppliers, if they get the order wrong, could wreck the production concept of homebuilding, which is at the core of its efficiency. Without computer tracking, builders have no choice but to standardize homes and limit choices.

Artist or architect?

In the end, what can be said about the state of the art of American housing is this: given the imperfect but relatively responsive way that free markets work, America has obtained more or less exactly the homes that most Americans want. The two-story, two-and-a-half-bathroom, three-bedroom palaces we see cropping up like weeds across the surveyed and graded hillsides of America are almost scientifically calibrated to provide the public's version of balance between look and price: brick on the front and vinyl siding around the back, slate flooring in the entryway, resilient flooring in the kitchen. Still, these homes remain architectural products; they continue to evolve, however slowly and in lockstep with public taste. Like all buildings, they retain the power to shape lives, inspire, and characterize our landscape.

Do these homes cease to be within the purview of architects simply because they are also in the realm of the free market? Are architects not in the business of improving the built environment, but only in the business of making one-of-a-kind commissioned art?

If the latter is true, we have agreed on a very narrow definition of the design profession. We have also condemned architects to serve only the wealthy, and to provide a correspondingly limited outlet for the profession's best talent. That is something we will all suffer for. ■



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(continued from page 64)

Union Internationale des Architectes Student Competition

Submission deadline: January 31

Student entrants are invited to design a housing project for a city in their home country. In addition to cash, the winner will receive the UNESCO Prize for Architecture. For information call Liu Kecheng at Xi'an University, Xi'an, China, 011/86/29/220-29-43, or E-mail LiuKCH@pub.online.xa.sn.cn.

Young Architects Forum: Scale

Submission deadline: February 1

"Scale" is the theme of this year's competition sponsored by the Architectural League of New York. Open to architects and designers who have graduated from undergraduate or graduate programs in the last 10 years. Winners receive a cash prize and are invited to exhibit their work at the Urban Center. For an entry form or for further information, call 212/753-1722.

Encouraging Neighborhoods of Choice and Diversity

Registration deadline: February 15

Submission deadline: April 15

This competition seeks innovative and sustainable redevelopment strategies for a Baltimore neighborhood that has witnessed a dramatic decline in population. First prize for the winner is $10,000. For more information, call Rob Inerfeld at the Neighborhood Design Center, 410/233-9686, E-mail him at inerfeld@hotmail.com, or visit www.ndc-md.org.

NYSCA Project Grants

Application deadline: March 1

The Architecture, Planning and Design Program of the New York State Council on the Arts announces grants provided through its Independent Projects category. Grants of up to $10,000 for architects, designers, and scholars are available for projects that advance the field and contribute to the public's understanding of the designed environment, especially those that are outside the realm of traditional practice. Open to New York State residents only. Contact Anne Van Ingen at 212/387-7013 or E-mail avaningen@nysca.org.

DuPont Benedictus Awards

Submission deadline: March 8 (professional architects); March 19 (students)

These awards, open to professional architects and students, recognize the use of laminated glass in commercial and residential projects. Winning architects receive a sculpture by glass artist Hans Godo Fräbel; winning students receive $15,000 for their programs. Entry forms are available from each of the sponsoring organizations: contact Stephanie Vierra at the AIA, 202/626-7446, vierras@aiamail.aia.org; Francine Troupillon at the UIA, 011/33/1/45-24-36-88, uia@uia-architectes.org; Joanna Hanes-Lahr at DuPont, 202/393-5247, haneslahr@mcimail.com. Information is also available at www.dupont.com/safetyglass/benedictus/index.html.

The Van Alen Institute Dinkeloo Fellowship

Submission deadline: May 7

A two-month stay at the American Academy in Rome will be awarded for the submission that best demonstrates how architecture and technology can be environmentally conscious. Open only to those who have graduated, or will graduate, from U.S. architecture degree programs between May 1990 and September 1999. For a competition packet, contact the Van Alen Institute at 212/924-7000, E-mail vanalen@vanalen.org, or write 30 West 22nd Street, New York, N.Y. 10010.

Resort Concept Competition

Submission deadline: May 15

The San Francisco–based Valor Group is sponsoring a competition for the design of an environmentally sensitive, portable tent village. For more information, call 415/276-5958. ■

Please submit information for events and competitions at least six weeks prior to the magazine's publication date (February 15 for the April issue).

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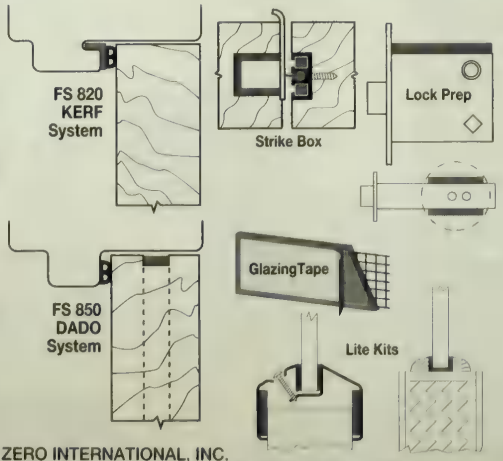
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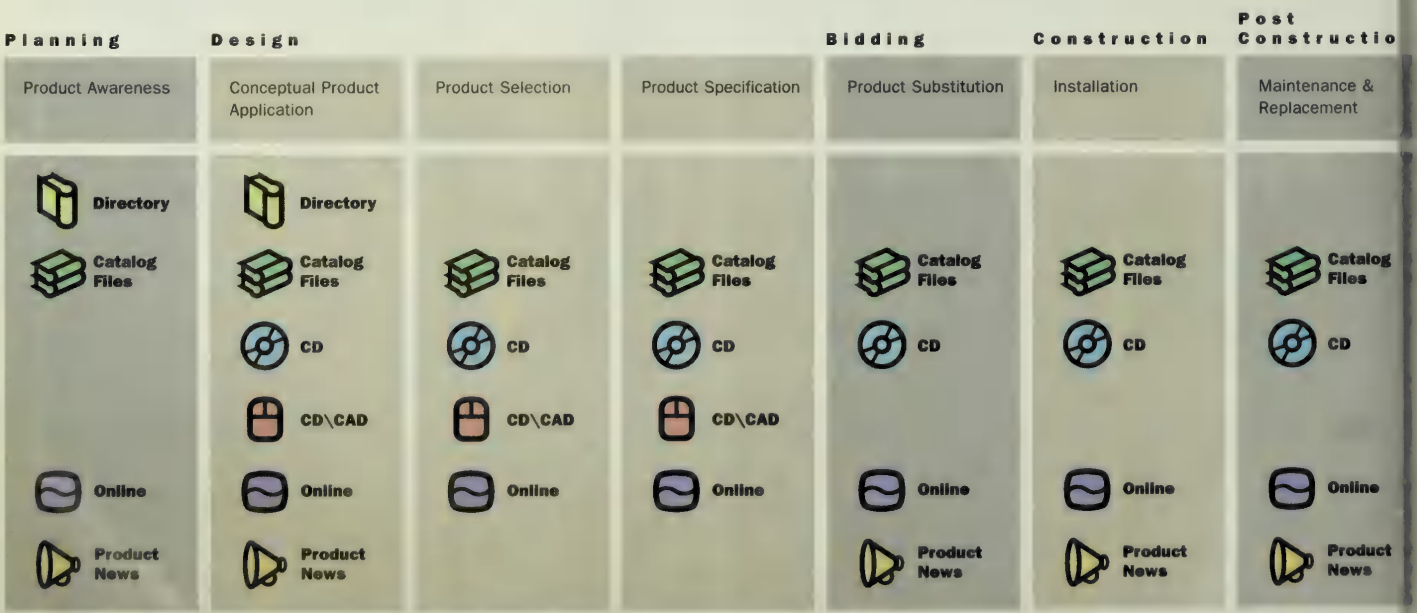
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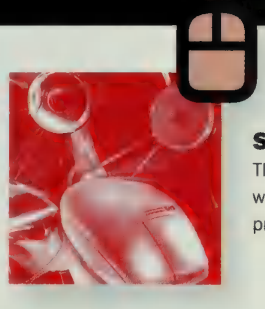
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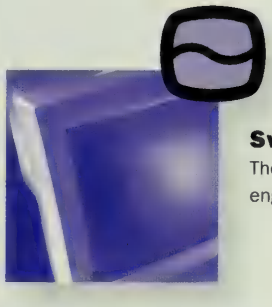
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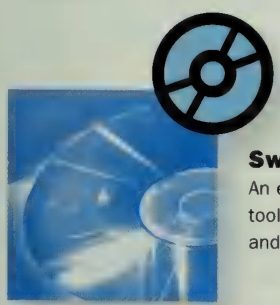
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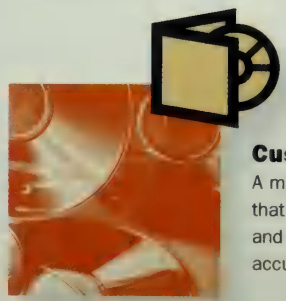
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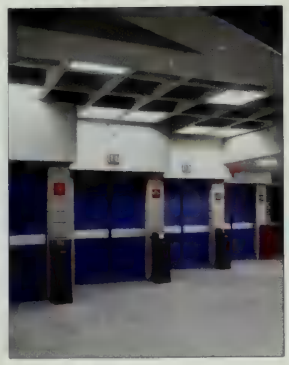


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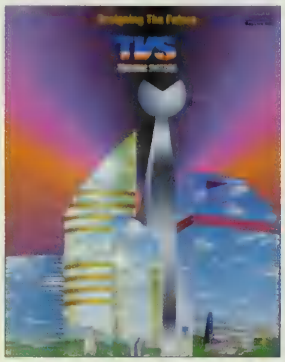


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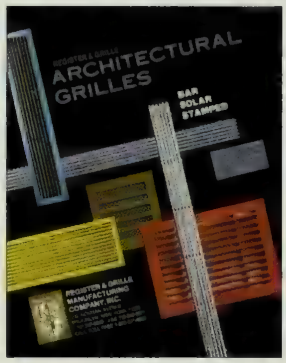


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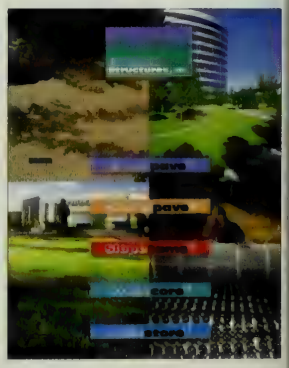


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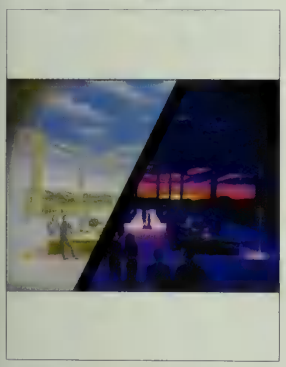


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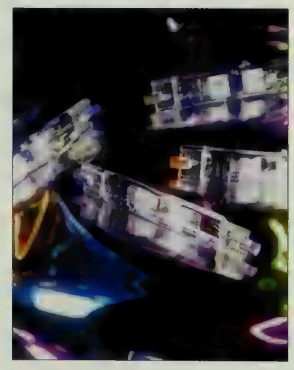


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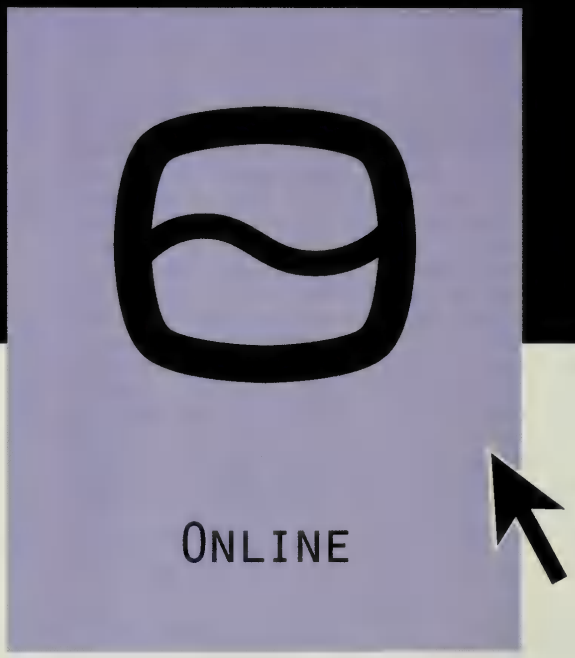


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The Dean, who reports to the Provost, leads the School in curriculum development, program planning and the acquisition of external funding, and maintains liaison within the campus, government agencies, related organizations and associations, and community leaders. The successful candidate should have a Master's degree and professional license in Architecture or Landscape Architecture, or shall have a Ph.D. in a related area of study as well as demonstrated commitment to urban architectural education, and a history of teaching, administration and/or distinguished professional accomplishment to qualify as a tenured full professor. The salary range is $92,904-$112,602.

Applicants should send a letter of interest, CV and list 4 references to be contacted at a later date by March 1, 1999 to: **Search Committee for Dean of SAES, Office of Affirmative Action, Harris Hall, Rm. 412A.** Applications will be considered until the positions are filled.

FACULTY POSITIONS-FALL 1999

All positions require a Ph.D. or equivalent degree or a Master's degree and professional licensure or registration. A CV should be sent by 3/1/99 to the individual listed.

URBAN DESIGN/ARCHITECTURE, Asst to Full Prof., to teach graduate level design studios with the ability to direct the program in the future and with expertise in another core subject such as history, theory and methods. Professor Lance Jay Brown.

SPECIALIST IN BUILDING SYSTEMS TECHNOLOGY, Asst. Prof. A creative vision of how computers can be used in teaching and research is desired. Professor Rosaria Piomelli.

ARCHITECTURAL DESIGN, Asst. Prof. A knowledge and experience in the application of computers to architectural design is desirable. Professor Carmi Bee.

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Ball State University invites nominations and applications for the Dean of the College of Architecture and Planning. The Dean reports to the Provost and Vice President for Academic Affairs and is the chief academic and administrative officer of the College. The Dean plans, directs, and coordinates the operational, personnel, budgetary, and student activities of the college and provides leadership and direction in the development and implementation of curricula, academic programs, and related activities.

Ball State University is in Muncie, Indiana, a city with a population of approximately 80,000, located 50 miles northeast of Indianapolis. The university has an enrollment of 18,000 students and a full-time faculty of 870. The College of Architecture and Planning, the only state-supported school of architecture in Indiana, offers programs at the baccalaureate and master levels to its approximately 685 students through its three departments: Architecture, Landscape Architecture, and Urban Planning. The College faculty, approximately 60 in number, hold degrees from more than 40 universities and have professional experience in a broad range of private firms, public agencies, and other academic institutions. Particular strengths of the College are its diversity and inter-disciplinary approach, as exhibited in its curricula and in special programs, such as Community-Based Projects.

The College is looking for a dean who has attained distinction in the environmental design professions and can exhibit evidence of knowledge of the professions, outstanding leadership and management ability, and a strong sense of vision. The Dean will provide academic leadership and foster inter-disciplinarity and will be expected to teach at least one course per year. In addition, the Dean will cultivate and maintain relationships with external constituents, including benefactors and alumni.

Minimum qualifications for the position include: master's degree and credentials that will merit a tenured faculty appointment as full professor in one of the departments in the college; demonstrated record of success in scholarly productivity and/or professional practice; demonstrated success in developing external funding or fund raising; experience in administration; teaching experience; and ability to communicate effectively. Salary is competitive and commensurate with experience and qualifications.

Applicants and nominees should send a letter of application, curriculum vitae, and the names of three references to: Philip Repp, Chairperson, Selection Committee for Dean of Architecture and Planning, Office of the Provost, Ball State University, Muncie, Indiana 47306. Review of applications will begin February 15, 1999, and continue until the position is filled. The position is available July 1, 1999. (www.bsu.edu/cap)

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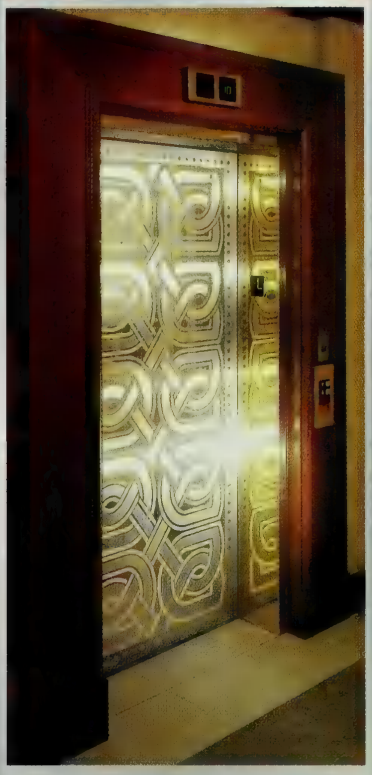
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THE FUTURE Expansion or contraction, ascent or descent? Some thoughts on the future shape of cities.



COMPILED BY DAVID SIMON MORTON

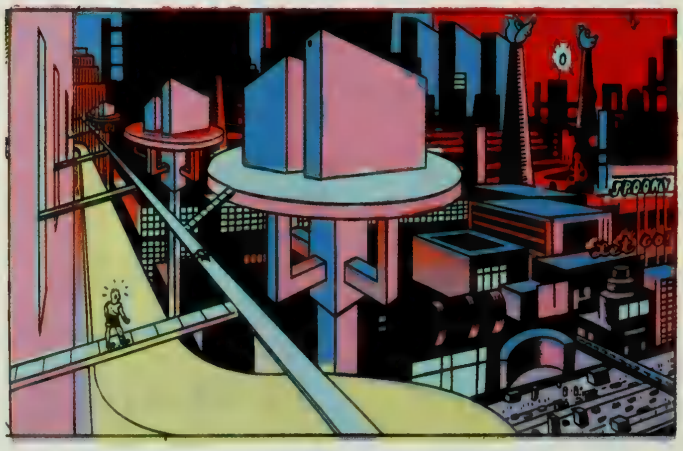
In the future, the money and the skilled workers that usually maintain a city and its infrastructure will have fled. Only the poor will remain, and they will fix up the deteriorating city as would anyone wanting to survive. The future city's sleek skyscrapers and empty buildings will be made useful, retrofitted with whatever is near at hand.
—*Lawrence G. Paull*
Production Designer, Blade Runner
Beverly Hills, Calif.

Despite all the talk about how the Internet is going to make distance irrelevant, physical proximity of people, homes, and businesses still matters.

Americans yearn for true community, yet they increasingly look to networks to connect us. Today it's the Internet; in the past it was telephones, television, radio, and even the highway system. Ironically, most of these networks have had the result of spreading us out even further, both physically and socially.

While I see value in these networks, they'll never replace the kind of community that begins at one's front door. For this reason, I believe that cities of the future will look and function pretty much like the best cities of the past.
—*Peter Katz*
Author, The New Urbanism: Toward an Architecture of Community
San Francisco

If cities are to survive as viable places to live, they will learn to use all resources more productively. No city today could survive being cut off from the flow of life support from the outside. Cities of the future will begin to learn the lessons of Curitiba, Brazil, where planning is based on what will best enhance the lives of children. Using this design principle, the people of Curitiba seek to promote genuine democracy, the efficient use of resources, and the restoration of the environment.
—*L. Hunter Lovins*
Executive Director
Rocky Mountain Institute
Snowmass, Colo.



The city of the future, by Gary Panter, creator of *Jimbo.*

The city of the future is a 24-hour city filled with opportunities for work, culture, and entertainment, and anchored by safe and stable neighborhoods of homeowners.

Vacant lots will be built up, historic structures will be restored, and aging buildings will be modernized to become home to a growing urban population. More young families and immigrant households of moderate income will make their homes in the city, as a wide variety of housing is made available at affordable prices.
—*James A. Johnson*
Chairman and CEO
Fannie Mae
Washington, D.C.

All the indicators suggest that the megalopolis will continue to expand without constraint, ultimately leaving in its wake the fragmented detritus of worn-out stock and infrastructure, not to mention people, as has been happening to most American provincial towns since 1945. This debilitating entropy is inseparable from that interstitial socioeconomic mix of First and Third Worlds, both within the inner city and without. Hence the familiar bombed-out expanses of Detroit, Buffalo, Houston, etc.
[Excerpted from a longer response]
—*Kenneth Frampton*
Ware Professor of Architecture
Columbia School of Architecture Planning and Preservation
New York City

The cities of the future that will continue to thrive are those that develop regionally, reversing the decades-long leeching of their tax and population bases to the suburbs. Reinvestment in the social infrastructure of schools, hospitals, and public space will support growth and make the great cities of the world function as desirable places to live as well as work.

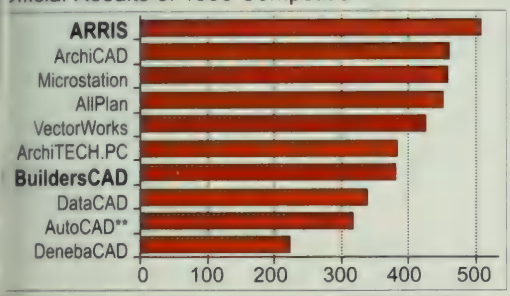
The shape they take will follow the form of their social innovations. High, low-sprawled, or underground—the architecture will take its inspiration from local conditions. Then the cities of the future might be as varied and brilliant as the great cities of the past, not the present high-rise monotony of downtowns from Los Angeles to Kuala Lumpur.
—*Ross Miller*
Author, Here's the Deal: The Buying and Selling of a Great American City
Storrs, Conn.

One of the greatest changes that cities will go through over the next five to 10 years is the replacement of high-rise and high-crime public housing neighborhoods with attractive, mixed-income developments. We've already helped dozens of cities to start this process.

We're seeing cities all over the nation following New Urbanist principles to create "people-friendly" neighborhoods that low-, moderate-, and upper-income families can share.
—*Andrew Cuomo*
Secretary, U.S. Department of Housing and Urban Development
Washington, D.C.

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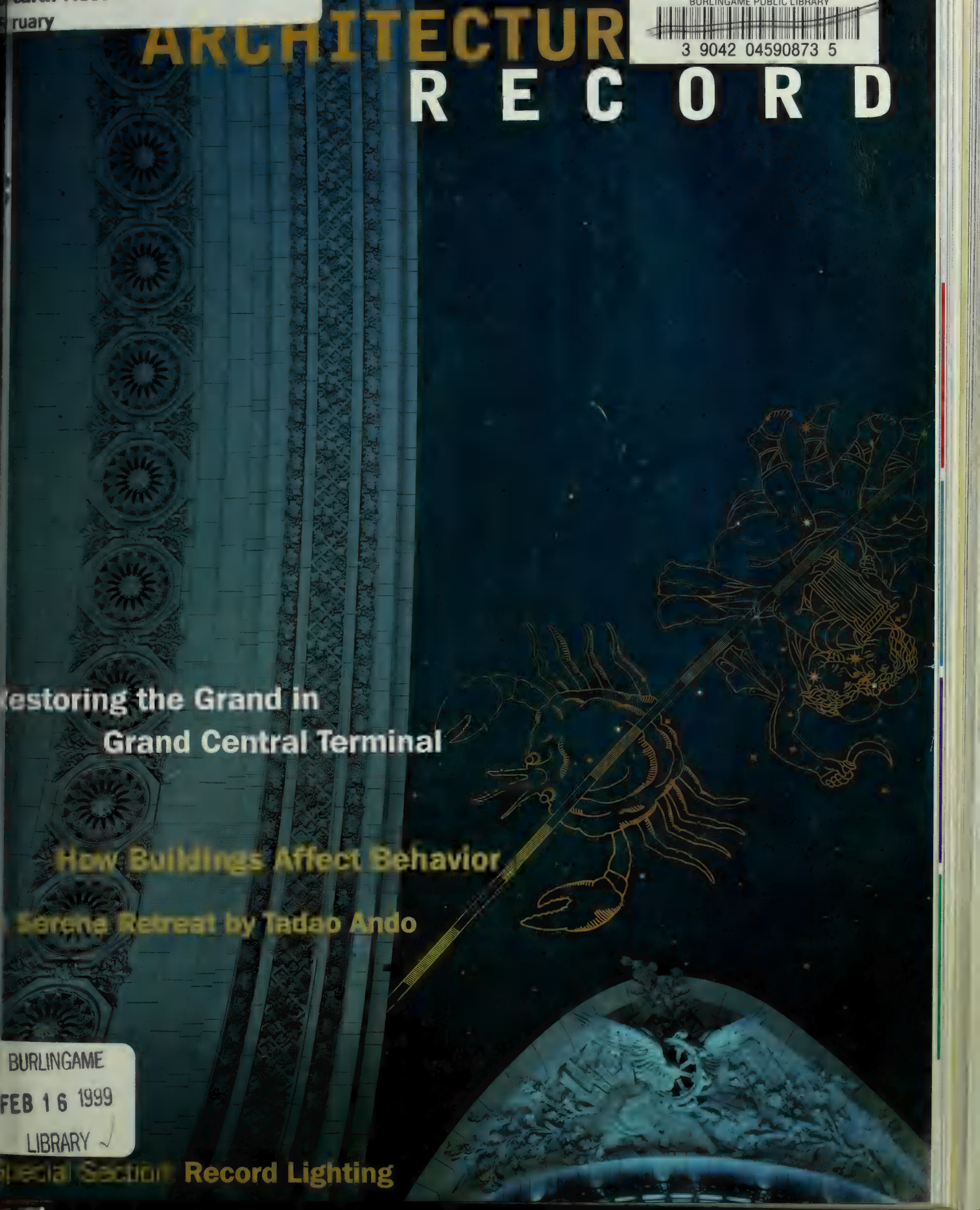
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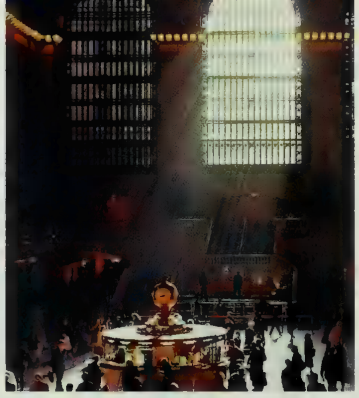
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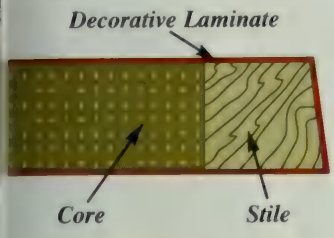
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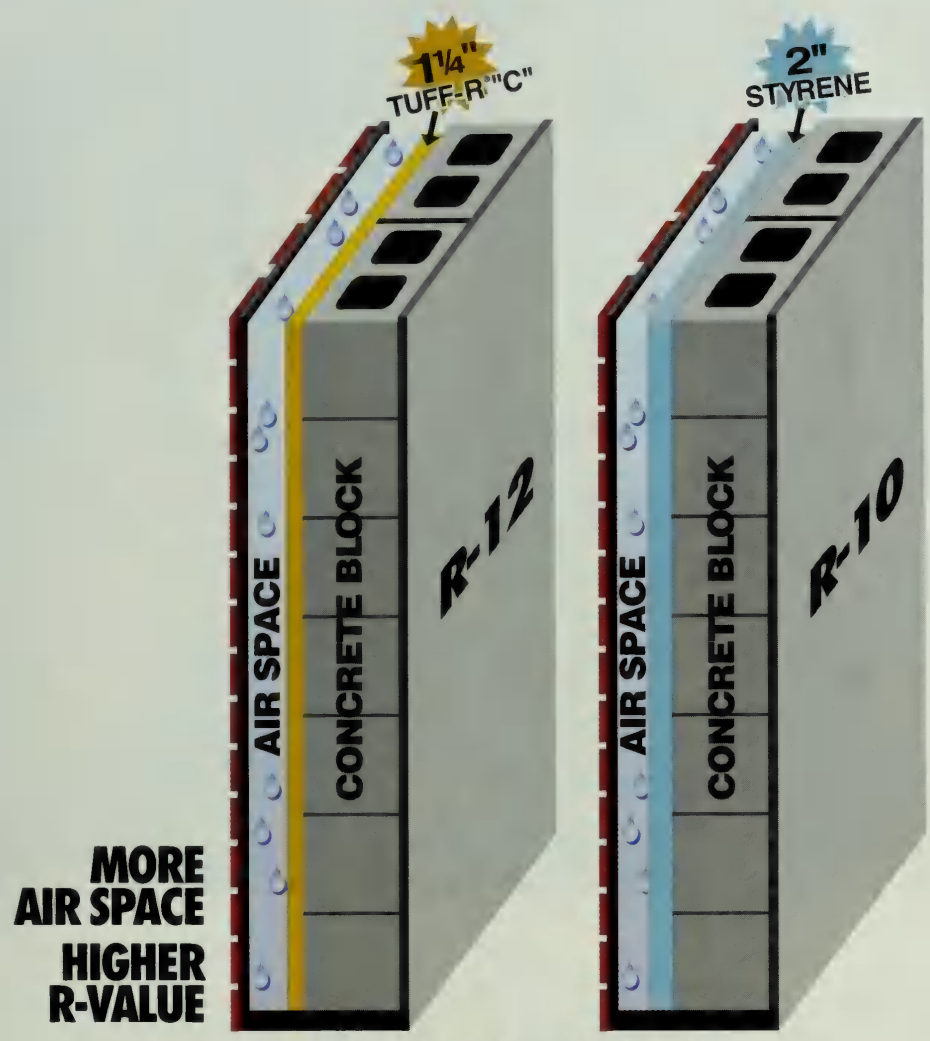
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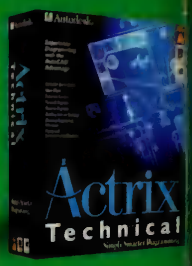
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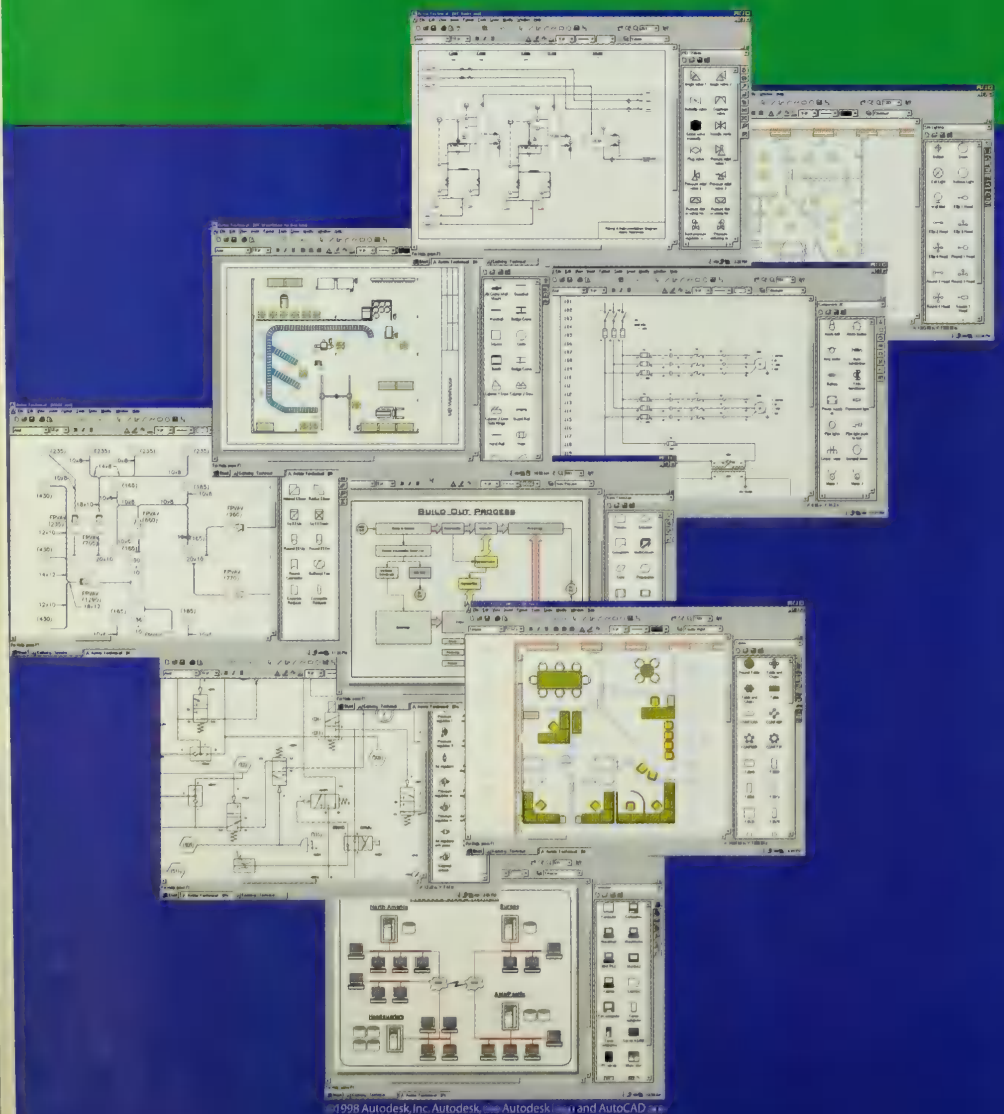
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EDITORIAL

Learning from Las Vegas

BY ROBERT IVY, FAIA

Listen to the hum. Across the continent and out to the islands, you can hear the ring from the casino floor, a seductive, whirring call to come, let go, and spend. Buildings are following the gambling dollars, fueling an unprecedented boom in design and construction that dwarfs the $1 billion budget of the "commission of the century"—the Getty Center.

Consider the astronomical figures. Las Vegas's latest offering, the Bellagio, cost $1.6 billion and encompasses a 3,025-room hotel. According to the Associated Press, in its first 20 days of operation the complex generated an average of $6.7 million in daily revenues. Other mega-resorts will quickly follow its success, including Circus Circus's Mandalay Bay, Hilton Hotels' Paris, and Sheldon Adelson's Venetian, ultimately bloating the desert city with 128,000 rooms. When will it end?

With each new high-rise, the city is transforming itself into an upscale destination. Its buildings have evolved from low-scale, motel-studded Sinatra country to today's jumbo-size fantasyland. Along the way, the strip has become a kind of midway, an American mall to the 10th power, a sidewalk leading from air-conditioned agora to forum, overflowing with shuffling humanity dropping dollars in their wake.

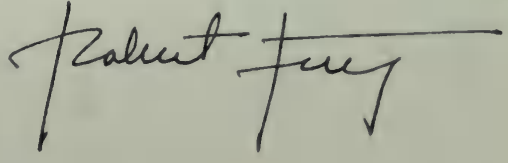
Is it architecture? The latest hotels in Las Vegas—slab-sided, immense structures—recall both Miami Beach and veterans' hospitals, and the crowds love them. However, jungle conservatories, gaming floors, and lobbies are combined into sprawling amalgams that can be disorienting and overwhelming. Although the goal is to capture your time and money, the question they raise is, "How do you get out of this place and on to the next attraction?"

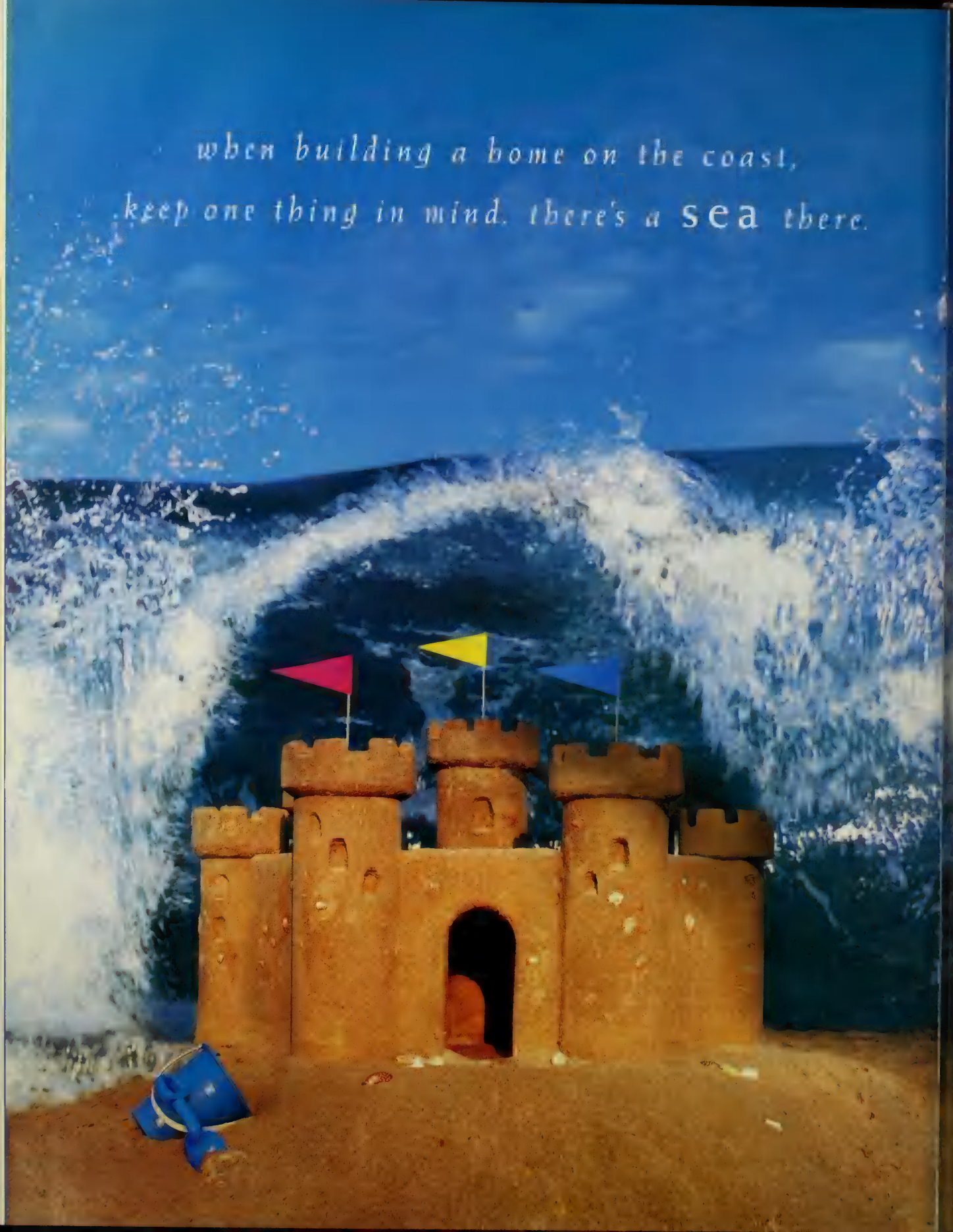
While Las Vegas, the repository of freewheeling American myth, is a special case, other locales, including sober cities like Detroit, want to join in the party, often by employing designs that mimic the Nevada originals. Even solitary Native American casinos down country roads try to capture a bit of Vegas gold, surrounding themselves with strip malls and fast-food eateries. This winter, the Mississippi Gulf Coast, a manmade beachfront strewn with historic houses and small towns, welcomes Bellagio's sibling, the 1,780-room Beau Rivage, a massive building that would be right at home beside Caesar's Palace. In Tunica, Mississippi, just outside Memphis, high-rise Vegas-style buildings loom from cotton fields like surreal omens; they look like flashing mid-continental signs pointing west, where the real action lies.

There are pitfalls. An enormous empty shell stands out prominently at the foot of Canal Street in New Orleans, a painful reminder of what was to be the world's largest casino. Gambling, plagued by high state taxes and corruption, has not proved to be a panacea even for gambling-loving Louisiana. Not all dreams come true, but the structures that embodied those dreams remain. What do you do, after all, when the party's over?

Without recognition and debate, fragile environments like the American Virgin Islands may be compromised by gaming mania. The New York Times *reported that St. Croix, an island devastated by hurricanes, is banking on casinos to help revitalize its broken economy. If it worked in Mississippi, why not further south? In its rush toward waterfront gambling, the casinos and hotels along the Mississippi coast inhabit land devastated by Camille, this century's most powerful hurricane. Where such large enterprises are planned, only informed local debate can clear the air.*

Nothing, however, is slowing the economic fury. We are challenged to harness and channel the casino phenomenon's inexorable energy—learning from Las Vegas, advising decision makers what makes sense for each city, for the land, and for the people who will come. While we may not control the game, we can focus the debate and we may affect the outcome, including the project design, in a positive way. Deal them up.




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CIRCLE 10 ON INQUIRY CARD

LETTERS

Space A/E's lack friction

"Listening to Engineers" [October, page 108] made me shake my head in amazement at the apparent conflicts between architects and engineers.

I am one of only three registered architects working with or at NASA. The experience of working with my colleagues in structures, avionics, materials, thermal/vacuum environments, and other engineering disciplines has been a rewarding one. It would have been worthless, however, had I not taken on the challenge of learning how to work *with* these professionals from the beginning. I have spent long hours listening to their presentations on arcane issues while volunteering formal solutions that optimize the systems they are trying to develop.

The result is that I now understand how to design an even better airlock or crew cabin, while the engineers have been happy to learn what an architect can offer them. Architects and engineers think differently, but when thinking together, they can make a truly formidable team.

—Constance Adams
Space Architect/Human Factors Engineer
Lockheed Martin
Houston

Trapped in the suburbs

I couldn't help noticing the ultimate irony in December's Building Types Study, "Detention Facilities" [page 69]. While gangsters reform themselves in thoughtfully designed spaces by the architectural elite, Joe Public is tragically surrounded by parasitical McBuildings and seas of asphalt. Who is really being punished here? Of course, the apathetic suburban frontier is perhaps in part to blame for the criminal mindset in the first place.

—Scott McElrath
Dangerous Architects
Chelsea, Mich.

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I can't help but wonder why in the course of all the considerations of Steven Ehrlich's addition to the Lewin House [August, page 74], people were so concerned with what Neutra would have liked but no one thought to ask the Neutra who is still around! I haven't seen the work, but from the photographs I can assure Ehrlich that my dad would not have introduced a curve in a vertical plane to compete with the original curve in the horizontal plane.

For owners who are gutting the interiors of Neutra houses or making other drastic changes, I invite inquiries as to what would be consistent with the original concept of the icons they have acquired.

—Dion Neutra, architect
Los Angeles

Credits/Corrections

Due to an editing error, the volume number of the January 1999 issue was printed incorrectly as 188. It should be 187.

Additional architect/artist teams working on the Villa Montalvo project (December, page 37) are Adèle Naudé Santos with Doug Hollis; Mark Mack with David Ireland; Dan Solomon with Patrick Gleeson and Nellie King Solomon; and Craig Hodgetts and Ming Fung with Lee Breuer.

Wilson & Associates were the interior designers for Las Ventanas al Paraiso, featured in the November issue (page 118).

In December's Product Reports (page 93), juror Dan Himmelberg, AIA, of Gould Evans Affiliates, was incorrectly described as overseeing the design of the Times Square AMC Theater; he is overseeing the graphics program for the theater.

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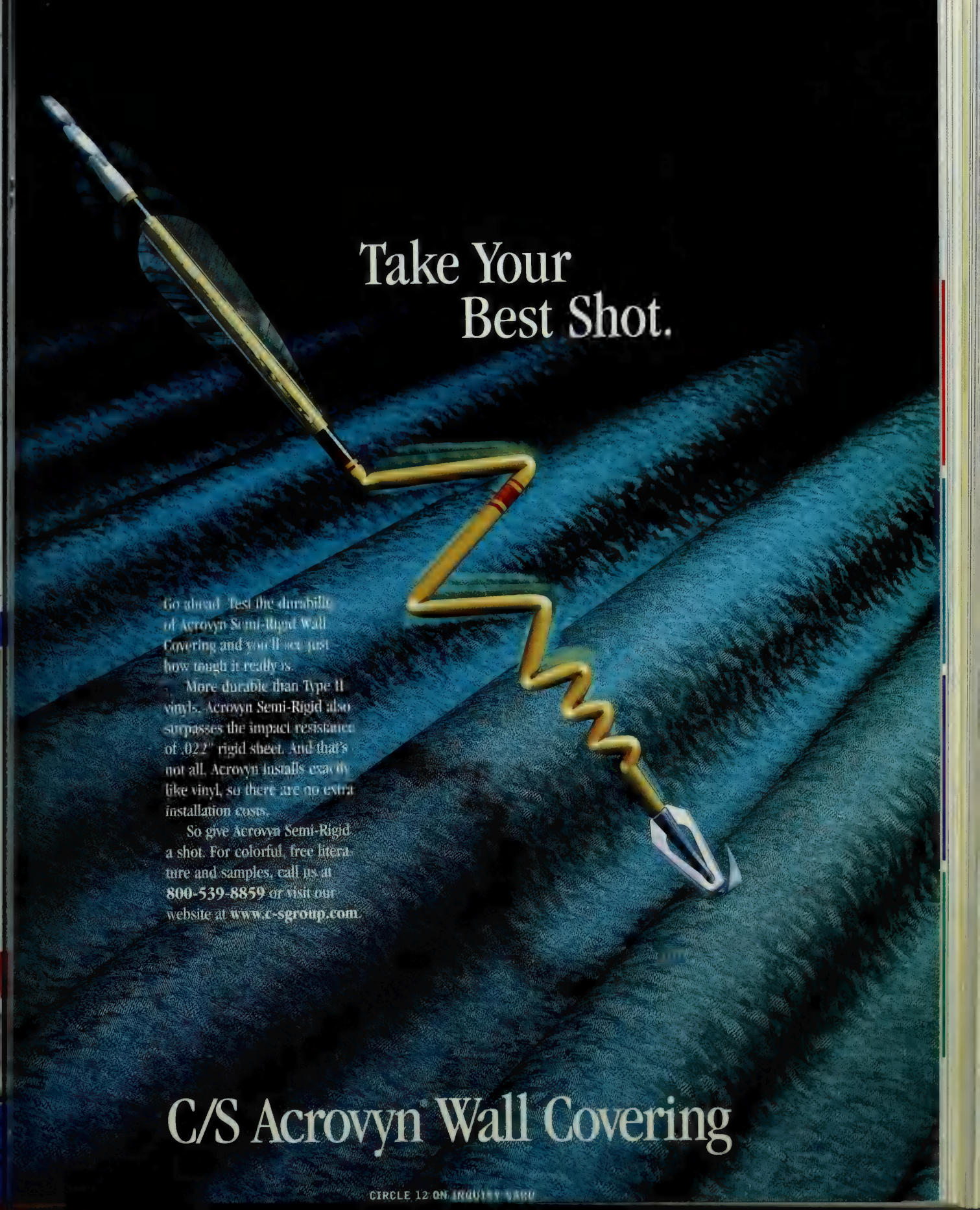
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CIRCLE 12 ON INQUIRY CARD

SPEAK OUT Forged from ironies: architects' attitudes toward design-build are ill-conceived and self-defeating.

CLIFFORD W. BEDAR, AIA, AND MICHAEL W. BEHM, AIA

Clifford W. Bedar, AIA (top), and Michael W. Behm, AIA, are directors of design-build services with HDR Architecture in Chicago.





As we begin 1999, the architectural community is embroiled in a circadian period of prosperity; times are good and commissions abound. However, a few visionaries have finally acknowledged our ever-dwindling influence on the design and construction industry. Competition grows fiercer as construction, preconstruction, program, project, process, and design-assist managers invade our territory. As a group, we have waged a sometimes bizarre campaign against the general public's indifference to understanding exactly what we do. While this may have saved a few trees, the forest remains an enigma.

There is hope. Right now, design-led design-build is whispering in our ears the secret to regaining influence over the built environment. Will we hear the message or continue to turn our backs on the opportunities this presents? As we share our design-build experiences with architects across the nation, we hear many reasons why architects cannot lead design-build:

Ethics. Architects proudly assert that they cannot act in the client's and/or public's best interest if they serve as both designer and builder. It would simply compromise the checks and balances essential to the traditional tripartite process. Ironically, this tells our clients that architects cannot be trusted with their money. The ethical dilemma is a self-fulfilling prophecy that architects helped to create and continue to nurture: the traditional design-bid-build process creates adversarial relationships, which fabricate ethics issues. In response, clients are opting for design-build, where the designer and builder are one entity. If design-led design-build lacks ethics, we have only ourselves to blame.

Quality. Architects associate design-build with cheap, badly designed buildings. The most arrogant among us believe that only the architect working independently of the builder, and sometimes the client, can protect a project's design integrity. Ironically, project quality is actually diminishing as a result of the conflicts inherent in this system. Projects over budget and schedule often mandate cheaper materials and reduced scope after it's too late. Moreover, we are more distracted with defensive posturing than focused on good design. This lack of quality in product and process is inciting our clients to demand design-build.

Liability. Architects have spent an inordinate amount of time and money trying to distance ourselves from project liability. The irony in the liability debate is that no matter how much we try to contractually isolate ourselves from the builder, our clients always perceive architect and contractor as a team. When there is a problem, it's everyone's problem. When we finally understand our client's perspective, we will understand the concept of a single point of responsibility.

And what are insurance companies saying about design-build? Ironically, they are actually encouraging architects to lead design-build, because statistics reveal fewer claims. Carriers prefer that architects actively manage their risks instead of just going along for the ride.

We wonder if our message will continue to fall on deaf ears. Like the cobbler's children, the architectural profession has no shoes. Our clients hire us to be visionaries, to create opportunities where they perceive only obstacles. Yet when it comes to the health of our own profession, we react too late, when the opportunities have disappeared.

Design-build offers a chance to recapture professional and financial success. As architects leading design-build, we have found it very close to our original ideals. While we may have assumed more responsibility by controlling both design and construction, we have also expanded our ability to manage risk.

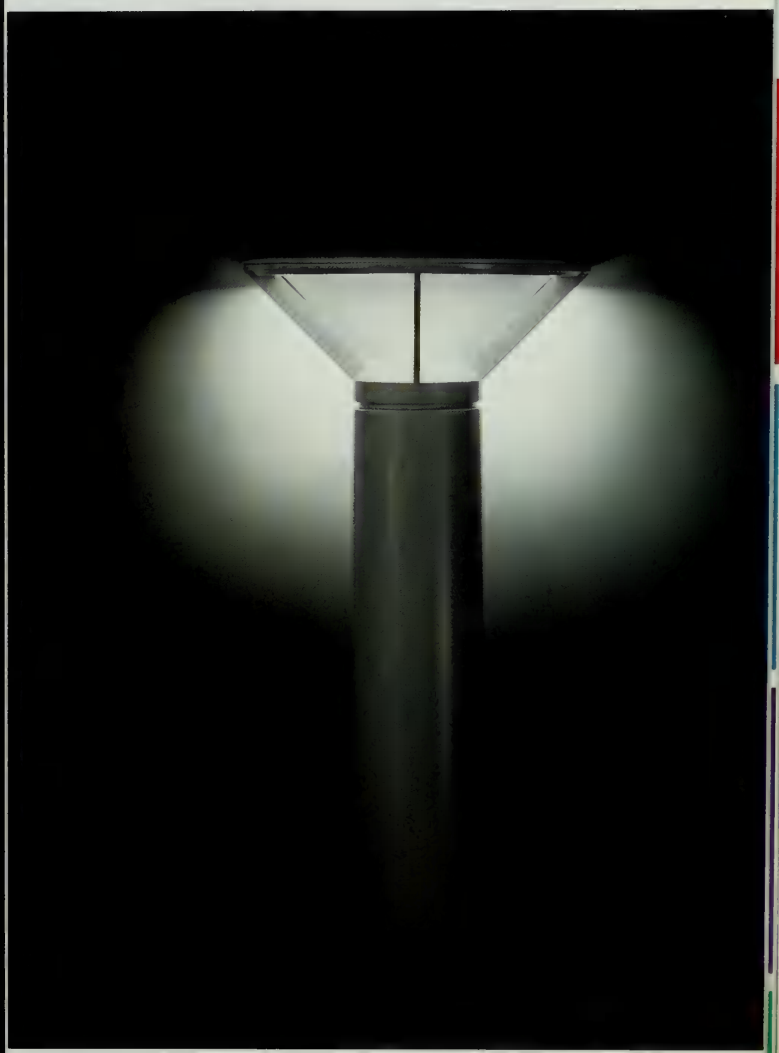
To sustain the profession and the public interest, architects must take the lead in design-build. It places us in the central role of designing and building the highest-quality project for our clients within their budget and schedule. Isn't this what architects are supposed to do anyway? Let's put some irons—not ironies—in the fire. ■

Contributions: *If you would like to express your opinion in this column, please send submissions by mail (with a disk) to Speak Out, Architectural Record, Two Penn Plaza, New York, N.Y. 10121; by fax to 212/904-4256; or by E-mail by visiting www.archrecord.com and clicking on News/Features/ Dialogue. Essays must not exceed 700 words. The editors reserve the right to edit for space and clarity. Where substantial editing occurs, the author will receive text approval.*

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Circle No **13**

MENTORS Design firms should care as much about managing their learning abilities as they do about managing projects.

Donald R. Levy is CEO of the Rochelle Organization Inc., an education consulting firm in Washington, D.C., and the former head of the AIA's professional development program. He has worked on education issues for many construction-related organizations, and his research has resulted in the development of the "learning maintenance organization," a strategy to maximize a firm's learning capacities.



The ability to learn is critical to an architecture firm because the field is constantly changing—particularly now, in the computer age. RECORD asked consultant Donald R. Levy to give pointers on how practitioners can ensure they and their employees are learning well and correctly.

Top-quality design and service demand superior knowledge and skills. As materials, technologies, markets, design trends, and regulations change, a firm's success will depend on its ability to learn and adapt. To stay the same is to fall behind. Can you afford to know less than your competition?

The firms that do best will be those that think strategically about learning. Firms should approach learning planning and management with as much rigor and discipline as they do project management. The cost of falling behind can be fatal. Training programs are investments the firm makes in its core asset—intellectual and technical capacity. Yet too often computer selection, office design, and marketing programs get more attention.

In many firms, training is assigned to the human resources staff (or the managing partner). Often, HR is primarily a salary-and-benefits operation. Because they aren't trained in learning assessment and planning, don't have the time for it, and are fearful of making mistakes, HR personnel give the task back to supervisors who are similarly unprepared. They in turn consult their staff members, who (research confirms) are not good self-diagnosing learners; they tend to choose what they're interested in rather than what will remedy deficient practice.

The firm winds up with a lot of money spent on training without any sense of planning or intent, without links to the firm's strategic plans, and without a system to ensure quality product selection or to spread the benefits to other staff.

Inept training not only fails to meet its goals, it will alienate the higher-level talent, confuse the mid-level staff, annoy line workers, and cast a bad light on the management's decisions. Money spent on something that doesn't work is money wasted.

On the other hand, the benefits of better-organized learning are many: better staff acceptance of the firm's goals, a "learning attitude" that helps you stay ahead of competition, increased productivity, more responsive staff management and performance planning, and improved morale. A successful program centers on these issues:

Strategic vision and planning. Where are you going as a firm, and what will it take to get there? What kind of company do you want to be? You need a consistent, logical, well-informed, and widely understood planning system.

Competency analysis. What competencies are required for future success? What knowledge, skills, and attitudes (KSAs) are implicit in the competencies you'll need? Critical thinking skills and impartial observations are imperative.

Learning assessment and planning. What kinds of competencies/KSAs do you have at the moment? What kinds do you need to grow? Where in the firm should these KSAs reside? How can you link learning planning and performance planning? How do you train staff for learning planning tasks? You need tools to measure and summarize KSAs, logical planning systems, and targeted training.

Learning program implementation. How do you ensure that learning occurs in a logical, efficient, and effective way? How can you get the best return on investment and positively affect the most staff? You need program planning and evaluation systems and good ways to maximize the benefits for the firm while addressing individual needs.

Planning your vision. After taking the first steps, see how your vision of the future held up. What progress was made in developing the requisite competencies/KSAs? What's next? You need good, impartial analytical and planning skills.

Think strategically about investment in learning. Professional development is fundamental to good management policy; it is also the foundation of the intellectual capacity of a firm's employees. If you think the cost of training is high, consider the cost of ignorance. ■

Questions: *If you have a question about your career, professional ethics, the law, or any other facet of architecture, design, and construction, please send submissions by mail to Mentors, Architectural Record, Two Penn Plaza, New York, N.Y. 10121; by fax to 212/904-4256; or by E-mail by visiting www.archrecord.com and clicking on News/Features/Dialogue. Submissions may be edited for space and clarity.*

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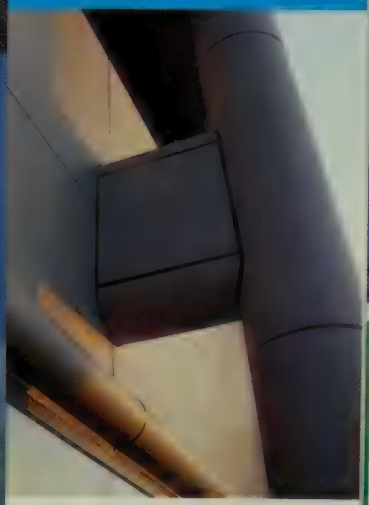
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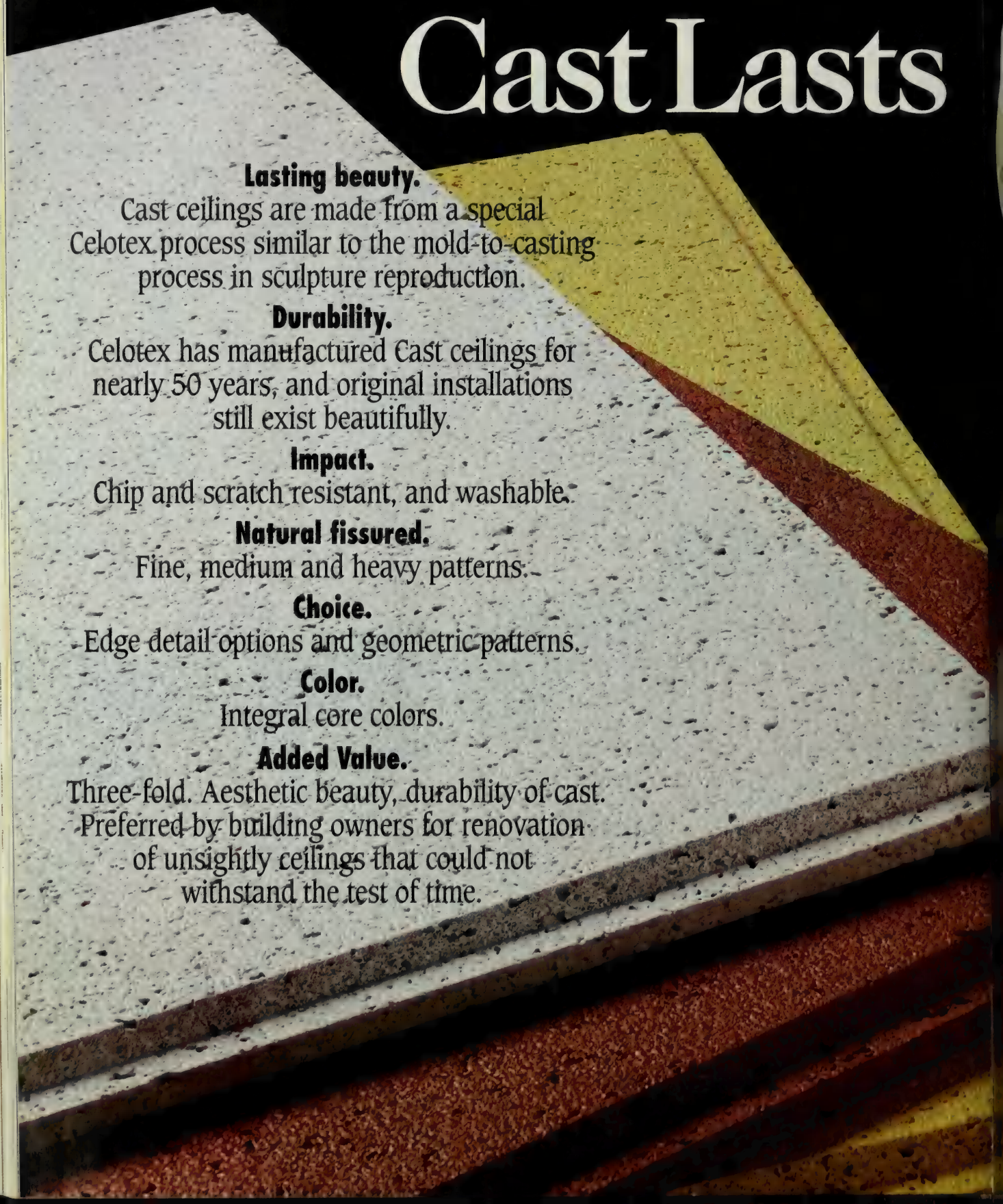
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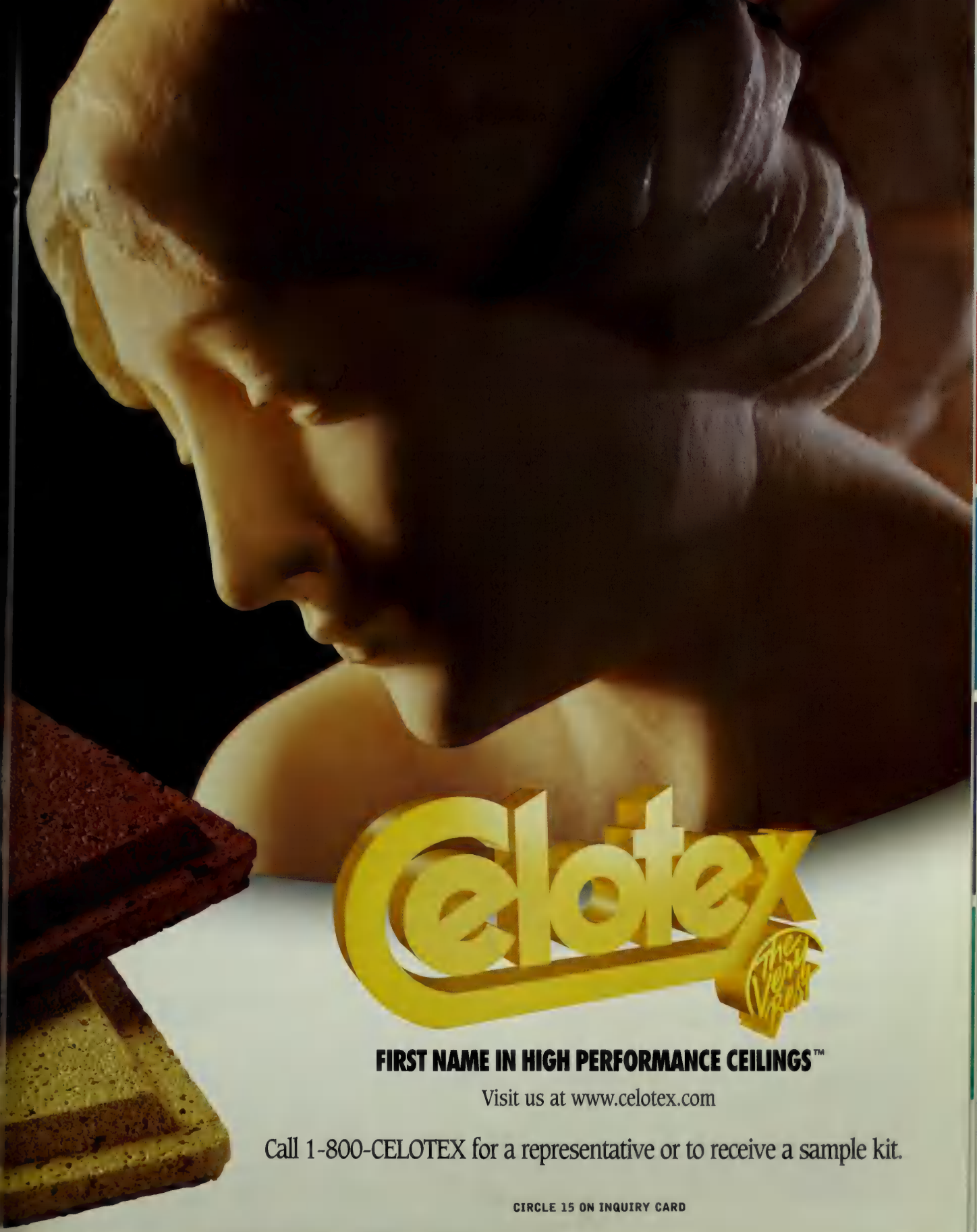
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CIRCLE 15 ON INQUIRY CARD

PULSE RECORD readers were asked: Can a new building that ignores principles of sustainable design be considered a success?

No: A building's success is a subjective idea that may be judged against the goals of the inhabitants, the clients, the contractors, or the architects. But if we look at the planet as a closed system, it soon becomes clear that any building not taking responsibility for its existence is failing all of us.
—Eric Corey Freed, Architect
San Francisco

Yes: The success of a building is measured by what it intends to accomplish as defined by the client, the users, and the architect. Just because sustainability is the latest trend in architectural theory does not mean it belongs among the goals for every new building.
—Aida Isabel Latorre
Dallas

Yes: I have a hard time believing that many of the extraordinarily beautiful innovations of our (mostly) European superstars didn't require equally extraordinary consumption of raw materials and fuel in milling, fabrication, transportation, and erection to come to fruition.
—Tim J. Carter
HNTB
North Bend, Wash.

Yes: Unfortunately, a building that ignores sustainability *can* be considered a success. This prevailing attitude comes at great expense to our environment.
—Brian Roth
Student, University of Idaho
Moscow, Idaho

No: The concept of sustainability is not limited to natural matters. Sustainability includes economic, social, and cultural factors. If the design of a new building ignores sustainability, it ignores the world around it. Clients and architects alike must be educated that sustainability is not limited to how "green" a building is but is also affected by how it interacts on every level with the world around it.
—Daniel J. Eitman
KTGY Group
Irvine, Calif.

No: As Frank Lloyd Wright said, our buildings should grace, not disgrace, the environment. To disregard technology that saves the environment would be a disgrace.
—Doug Gehley
Vienna, Va.

Yes: The architect, while sometimes able to steer a client toward building ideals such as sustainable design, simply cannot force these ideals on an owner. Most architects cannot afford to pass up a project because it doesn't coincide with his or her personal ideals. As Wright was reported to have said about an unpleasant commission, "After all, my kids needed new shoes."
—Scott A. Gilbertson
Intern architect
YHR Partners
Moorhead, Minn.

Yes: I think a building can be considered a success even if it ignores accepted principles. If the building is an innovation and implements new design ideas, it is a success. Frank Lloyd Wright is one example. I think every one of his buildings was a great success. They were innovative and did not conform to accepted ideals.
—Basar Girit
Plainsboro, N.J.

This Month's Question

Does the architectural profession need the star system?

In a recent critics roundtable (January, page 69), Cynthia Davidson said that every profession—including architecture—needs its celebrities and heroes. This may be contrary to the opinion of most architects. What do you think about the star system?

Does the architectural profession need the star system? ☐ Yes ☐ No

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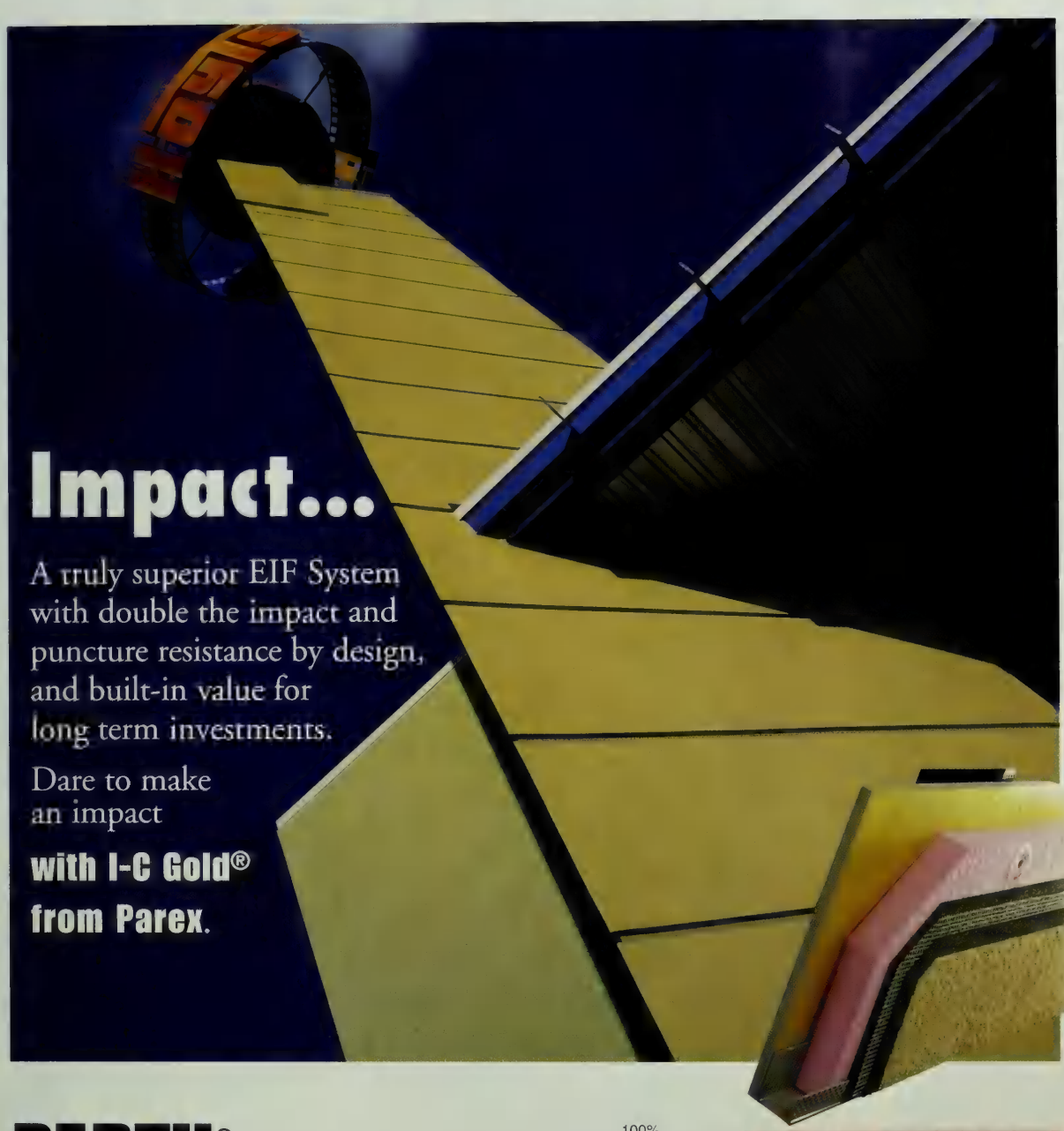
Note: Pulse reflects individual responses to each month's question and is not meant to be construed as formal research.

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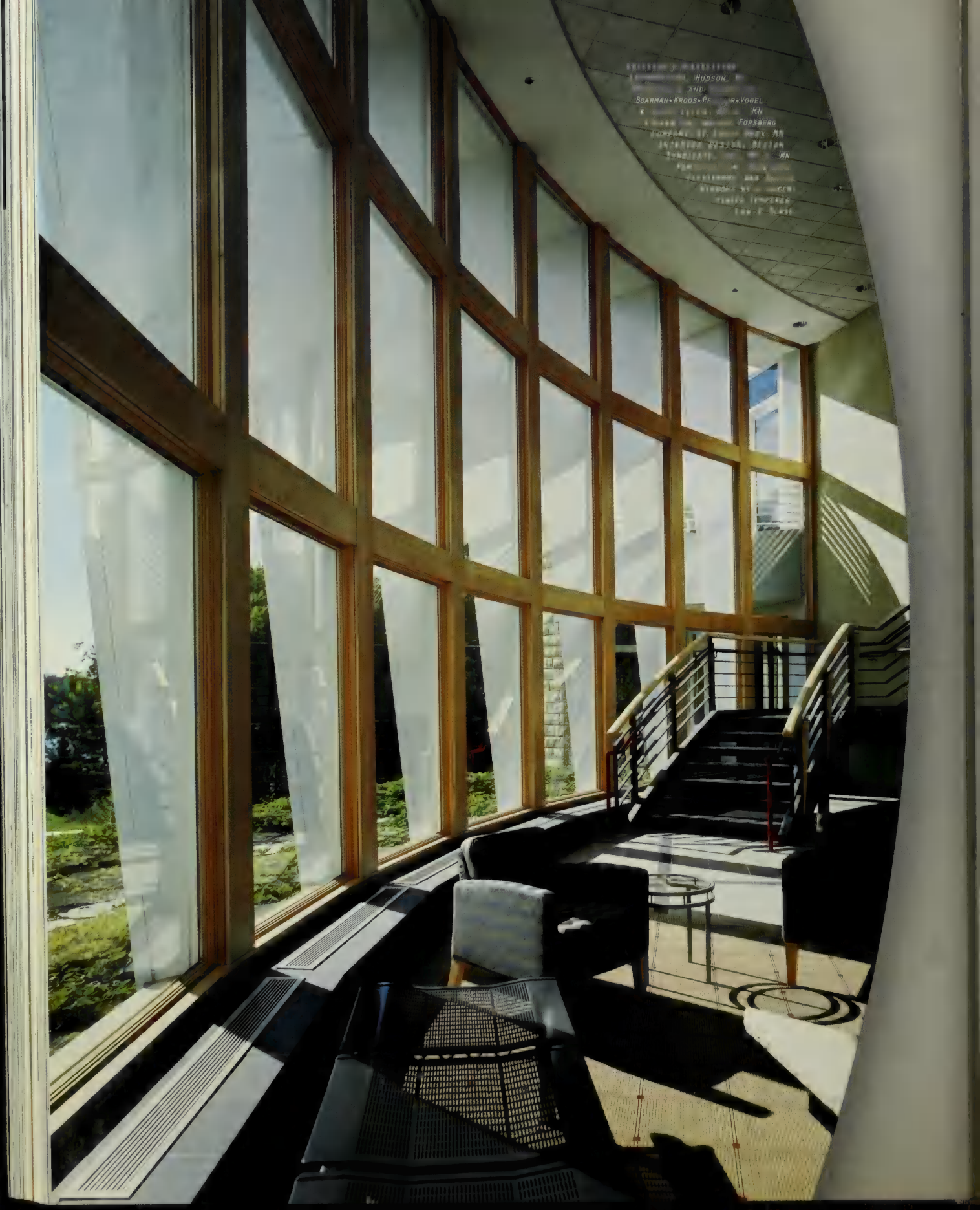
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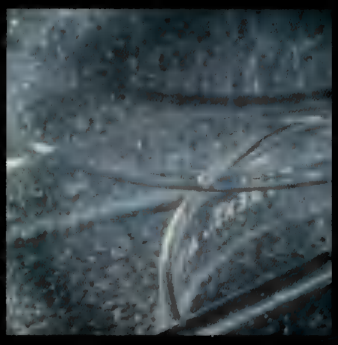
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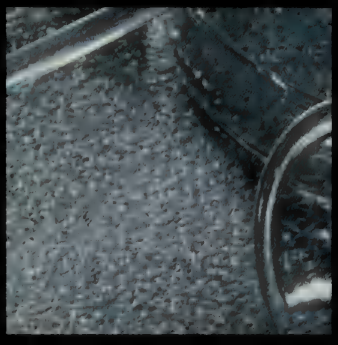


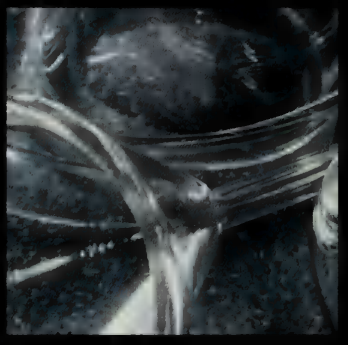


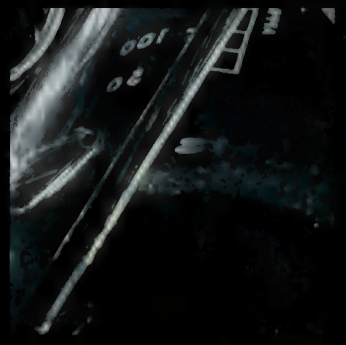


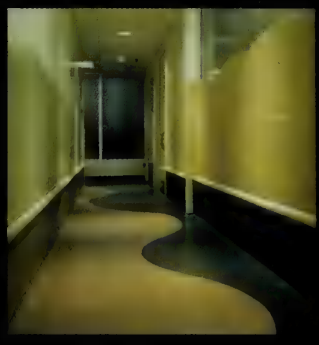




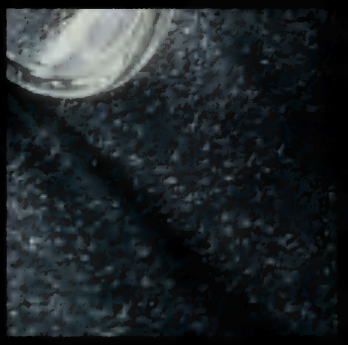
















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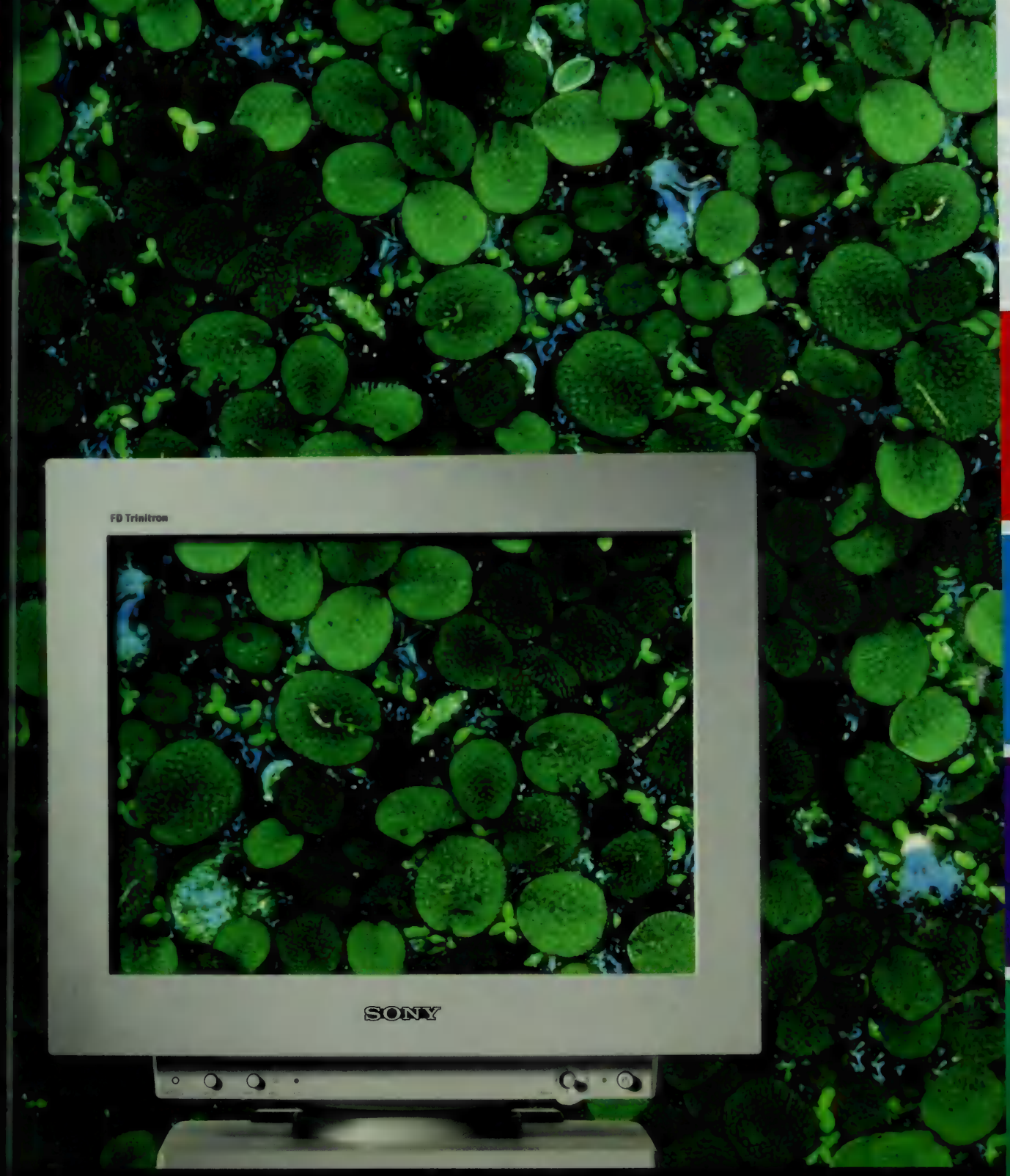
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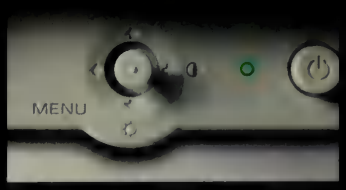
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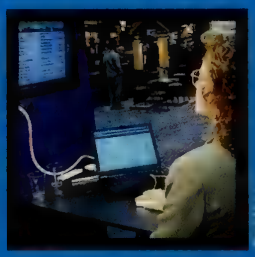
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CIRCLE 20 ON INQUIRY CARD

CRITIQUE Nostalgia's dead: long live the vigorous, innovative architecture for which the '90s will be remembered.

BY DOUGLAS COUPLAND

Douglas Coupland is the author of Generation X, Microserfs, Girlfriend in a Coma, *and other books. He has also written essays about architectural subjects, including airport hubs and the work of Rem Koolhaas. He lives in Vancouver.*

This is the first edition of RECORD's new critical column. Upcoming issues will include writings by William J. Mitchell, Peter Davey, and others.

I remember the little lull back at the start of the 1990s, back when the decade was blank and looming, back when the 10 years ahead held for me the allure of a witty-looking *New Yorker* cartoon for which the caption had yet to be written. Dreadful, dreadful, dreadful 1980s buildings littered the landscape like so many concrete Stalinist wedding cakes and cheesy, oversize mimics of Alessi trinkets. It truly felt like somebody had pulled the plug out of history's clock with the hands permanently stuck at, say, 1988.

And then . . .

And then came Grunge. And Generation X. (I plead the Fifth on that one.) And the Internet. And raves. And *Wallpaper**. And the Bilbao Guggenheim and the Getty and the volumes of vigorous, innovative, and compelling architecture for which this decade will be happily remembered . . . the mothership nerve cortex of Berlin's Friedrichstrasse; Steven Holl's Seattle chapel, seemingly carved from beeswax and uranium; Koolhaas's Euralille, a Kraftwerk album converted into plywood, glass sheets, and steel.

Well, *well.* Suddenly, it seems, we have ourselves a stylish decade, and not just any old stylish decade, but a great one. And I find myself considering the decade's textures and allure, wondering, just what makes the 1990s the 1990s? What are its textures? What is unique solely unto it? There's the chewiness of portobello mushrooms and the gleam of titanium cladding. There's the fluid polygons of Lara Croft's body and the shimmer of micropolyester athletic wear. There's the mental room temperature brought on by Prozac and there's the calculated decay of *Raygun*'s typography.



The world of cyberspace is producing new, ultra-modern icons—as exemplified by Lara Croft, the first computer game superstar.

At the least, we can say that the 1990s have been a decade of unparalleled technical and biological innovation. Think of Norman Foster's use of trees as air-conditioners, and Santiago Calatrava's algebraic bridges. And just about anything to do with the Bilbao Guggenheim.

Looking at all of this, I'm struck by a core truth of the 1990s: no one is nostalgic anymore. Nobody's harboring moony fantasies about living in the past—not even in such surefire time-travel hits as the Bloomsbury Set or the Summer of Love. And it's not even a matter of nostalgia not being what it once was. Nostalgia's *dead.* The past sucks. Right now is good. Right now is darn good. The future might even be—pinch me—better. Witness three of last year's most talked-about films, *The Truman Show, Pleasantville,* and *Saving Private Ryan.* All reject the canons of the past completely or view them with a refusal to sanitize. *The Truman Show* goes so far as to portray Florida's New Urbanist nirvana, Seaside, as dystopic.

This leads to the next observation about the 1990s: the least successful and least satisfying dimensions of design are those that consciously milk the past—the theme-parking of public life exemplified by, say, Disney's transmutation of Times Square, or Prince Charles's Poundsbury. Can't they come up with something *new*? We're equating design failure with the inability to generate new forms.

Excellent. The 1990s has meant a pleasant recapturing of a sense of optimism about the future, one that got lost somewhere between the introduction of the Ford Mustang and the lunar landing. Modernism, once about as alive as

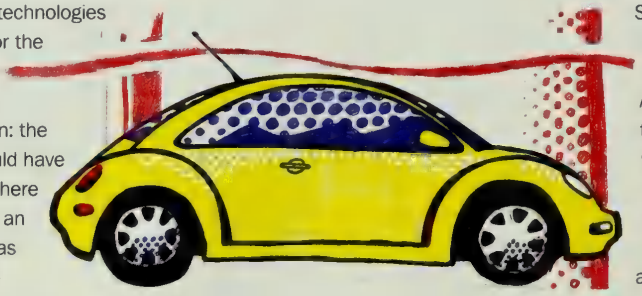
Walt Disney at two degrees Kelvin, is breathing and dancing. We love Modernism now. It's groovy and sleek. We like it because it embodies a belief that new forms and a better world can be attained through the use of new materials and informed design decisions. We like it because it can elevate us. It speaks to our social conscience as it did to the original Modernists. Gordon Bunshaft is sexy! Wallace K. Harrison is sexier! Brasília is once again . . . *the future!*

But whereas Bunshaft was about 3,000 Jack Lemmon Everymans designing spreadsheets in the veldts of Connecticut, 1990s Modernism is about, well, a half century of Modernism's failures—in particular, the cruelty and ugliness of the 1980s. By now we know what mistakes not to make. We have in our minds a tape loop of the homeless begging along Madison Avenue, and a Pruitt-Igoe demolition scene—except in the new scene, it's Michael Graves's Portland Building becoming dust, from which rises Kuala Lumpur's twin towers, Renzo Piano's Kansai Airport, and just about every Dutch social housing project since the end of the Bush Administration.

When did the future regain its gleam? For me it was in 1997, at a Vancouver auto show—at the sight of a New Beetle, which I bought on the spot. The New Beetle (below) is a contradiction that proves an earlier point. It's architecture on wheels. It embraces the future by rejecting the past. And it elegantly embodies two of the forces that have given back to us the future: the ultra-democratization of good taste and the use of high technologies and materials for the Forces of Good.

And here's the contradiction: the New Beetle would have worked even if there had never been an old Beetle, just as Koolhaas's neo-Modernist house in St. Cloud would have worked even if there had never been a Villa Savoye. They're both just darn good works.

It's easy to bitch and moan about the present and get all nostalgic for the past. Crabbiness about the present allows us to live inside a static retro universe of brittle little *New Yorker* cartoons. Get over it. Modernism was about good taste and good design for the masses. And we're getting there. Okay, the Gap and Starbucks are paving the world, but do we want to go back to JC Penney knit shirts and swamp-water java? Restoration Hardware, Linens 'n Things, and designer homes purchased online really *do* raise the bar of taste for the average citizen. Sometimes it can seem as if the time lag between the Gagosian Gallery and Omaha, Nebraska, has been reduced to about three minutes (or three seconds if you have a T1 connection).



But it's *good* that kids know about Jeff Koons. It's good to find Kona Roast coffee and *mille feuille* danishes in Boise, and it's cool that kids are dressing up as Warhol for Halloween. It's the worst sort of self-conscious, mean-spirited snob who begrudges the rising general taste level of Western industrial culture. Snobbery these days is, if not dead, certainly a fair whack harder to practice. At the end of the decade there may not be a brittle, wry little caption at the bottom of a year-end *New Yorker* cartoon. There may well only be a fine little illustration. ■

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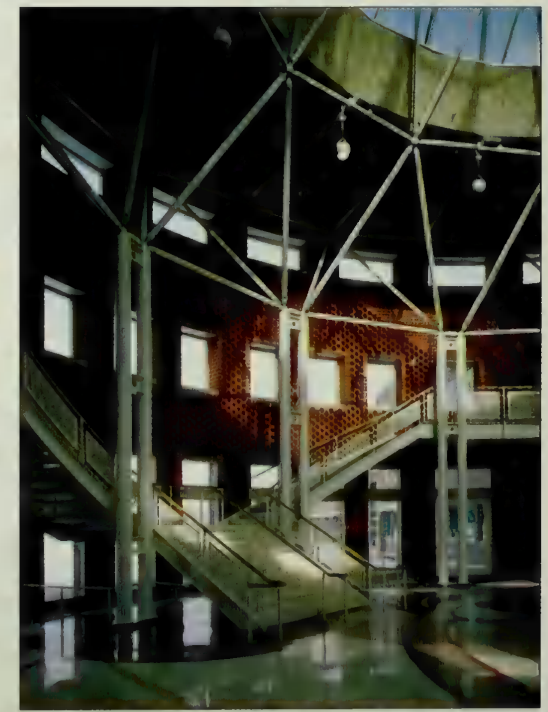
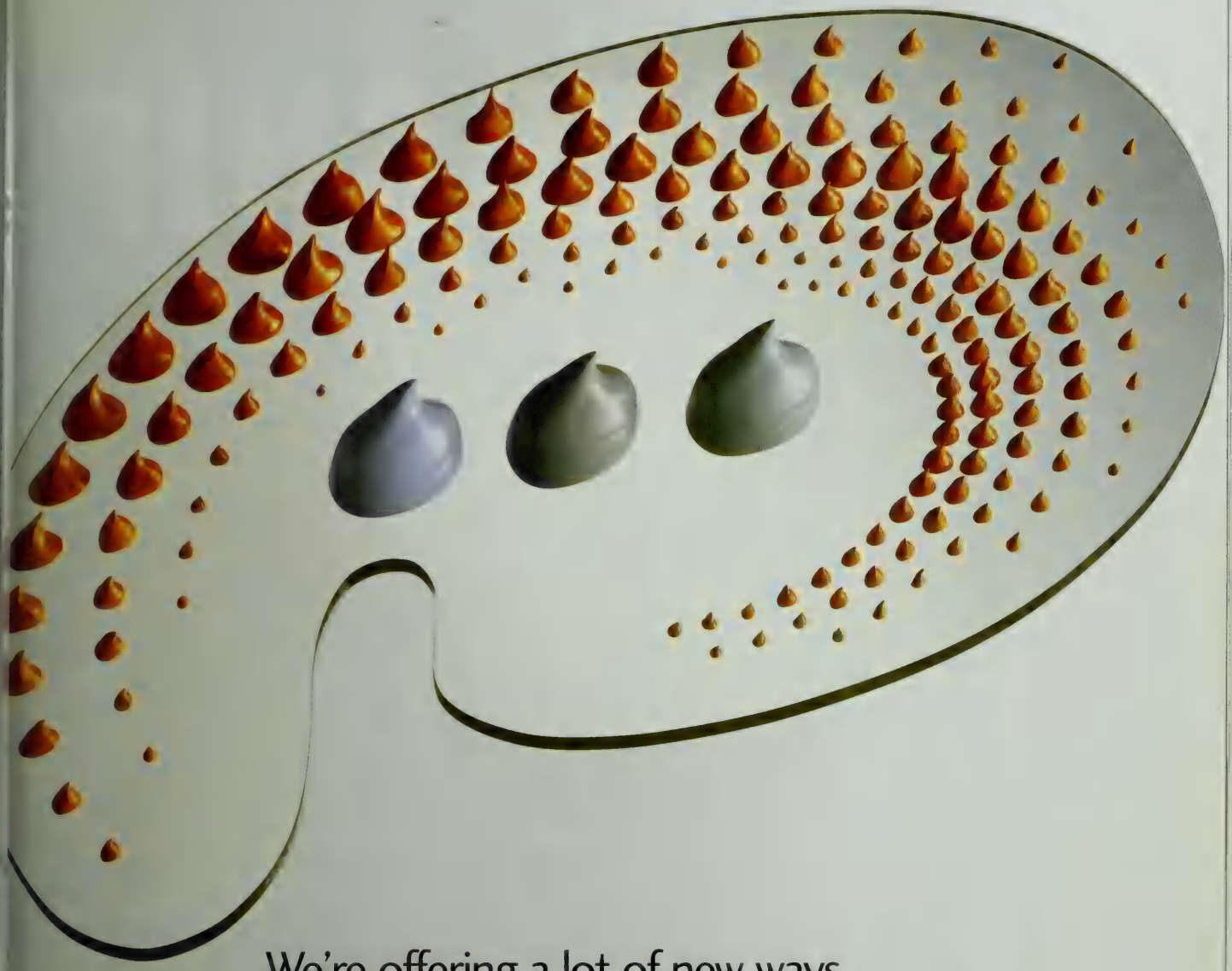


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CIRCLE 23 ON INQUIRY CARD

DIGITAL ARCHITECT Software being developed now will completely change the way architects design, and how they charge for their work.

BY B. J. NOVITSKI

The computer has brought plenty of changes to the architectural profession, but the way architects approach design has remained consistent. Computer-aided drafting, after all, is still drafting; although sophisticated digital technology may intervene between the designer's act of drawing and the final production of bluelines, the initial process and the final result are basically the same.

But the changes in technology within the architecture profession over the last 15 years are minor compared to the tremendous innovations that are coming. Chief among these will be the impact of object-oriented approaches to CAD systems. Instead of graphic representations being the software's primary data, designers will produce electronic definitions for "intelligent" objects such as walls, windows, and roofs, which will reside in a highly complex database.

These objects are referred to as intelligent because software keeps track of their behavior and their relationships to other objects as well as their appearance. Working drawings, schedules, and specifications can be generated quickly from the database of this information, replacing long hours of drafting.

As a result, the time it takes to complete various design phases will shift, and the tedious act of drafting will be replaced by a more decision-intensive design process. This will affect the traditional roles and relationships within firms. For example, senior designers may have less need to delegate menial work to junior designers, so there may be less low-level work for the juniors to hone their skills on.

B. J. Novitski, a contributing editor to RECORD, specializes in computer technology. She is the author of Rendering Real and Imagined Buildings *(1998).*

The model is key

Future software systems also promise to have the ability to exhaustively define a building through its entire life cycle. No single system has yet reached this goal, but Autodesk and Bentley Systems have come close enough that it's possible to envision the future.

In the scenario suggested by these vendors, a single, unified data model encompasses all the information about a building, from its initial programming through all the phases of design and construction. It serves as an aid to maintenance and operations and even covers the building's eventual demolition.

As the building evolves, the model grows richer in information added by architects, their consultants, and the constructors. This data includes the graphic representation of the building's form, numeric results of engineering analysis, text-based material specifications, project schedules, cost calculations, and more.

A software system that could support all of these types of data and their collection would need to adapt to the changing demands of the users throughout the building's life cycle. The system might be a free-form 3D modeler early in design, a precision component developer later on, and a Web-based exchange system for those involved in the final stages of construction.

During design development, specialized calculation or generation tools would aid, for example, in forming spatial layouts or creating code-compliant stairs, restrooms, and parking lots. As design progresses and materials are defined more specifically, links may be inserted between elements in the database (symbols on a plan) and the Web pages of building product manufacturers. These links could facilitate access to technical data and make specification writing a simpler task.



This new residence in Oakland, California, by House + House, was created in ArchiCAD. The detailed perspective views were manipulated in Photoshop and composited in QuarkXPress.

Clients could track ongoing progress by viewing renderings on a project Web site. Instead of using architectural plans only as background, engineers would add their analysis and design to the same model. The model would support construction processes by displaying length and area data, for example, linking to installation demonstrations on manufacturers' Web sites, displaying site photographs to construction administrators, and tracking project schedules and cost calculations.

Facilities managers would tap the same model for information about maintenance schedules, personnel moves, furniture ordering, and so on. This centralization of information would help improve communications between disciplines and reduce conflicts. Although most of these individual functions are theoretically available now, nowhere are they integrated into a single, streamlined package.

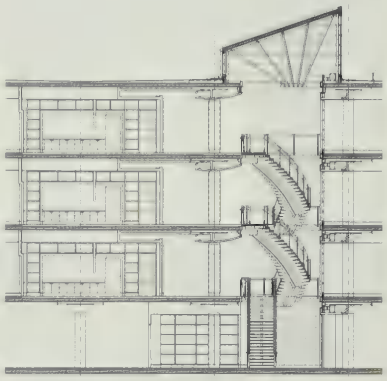
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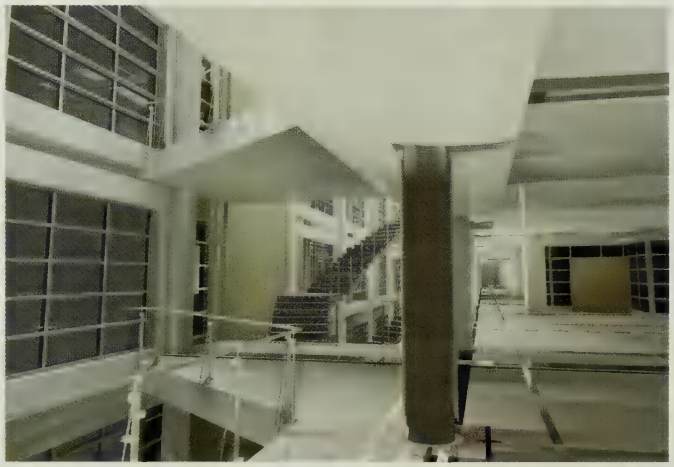
Some architectural software, such as Graphisoft's ArchiCAD, has been "model-centric" for years. As a designer draws in plan in ArchiCAD, a model is created, complete with a third dimension and a database of information about sizes and materials. Renderings and construction drawings are easily generated from this model.

The San Francisco firm of House + House, which specializes in custom residential design, relies on ArchiCAD to do the things they

couldn't do manually, such as quickly studying spaces from many angles and experimenting with complex color schemes. Firm principal Cathi House says that although she still loves making working drawings by hand, ArchiCAD's capability to move from schematic to detailed design is indispensable in helping both architect and client visualize the proposed design.

For example, House + House frequently investigates several alternatives during schematic design. "ArchiCAD's 3D modeling capability provides us with a quick method for visualizing massing studies, sun angles, roof configurations, and siting options," she says. "Then, during design development we are able to carefully refine specific building components such as lighting layouts, color schemes, and cabinetry details."





Burt Hill Kosar Rittelmann is renovating an operations building in Maryland for the General Services Administration. The model in MicroStation TriForma (below) outputs precise 2D line drawings (left) and perspectives.

Preparing now for the future

The firm of Burt Hill Kosar Rittelmann Associates has been exploring how much of the ideal scenario of a single, unified building model it can implement with Bentley Systems' MicroStation TriForma. Using solids modeling—the electronic equivalent of modeling with clay—the architects can work with form and space during conceptual design. Then they attach attributes, such as those related to thermal or structural performance, to that same model, which enables them to explore various technical considerations of materials and construction.

From the TriForma model, they are able to generate 3D perspectives for client presentations and extract 2D plans, sections, and elevations that will eventually be used as the base for construction drawings. Any modification to the 3D model will show up in subsequent 2D extractions, though TriForma is not yet "bidirectional," able to automatically reflect edits in the 2D drawings back to the model.

Burt Hill is now customizing the software to fit the firm's standard practices and organizing their component libraries—the object equivalent of traditional symbol libraries. Once these libraries of materials are set up, generating cost estimates, schedules, and specifications will be simple and quick. "We're now going through several pilot projects to get a feel for what the work flow will be in the future," says associate Mark Dietrick, AIA. "It will take a little more time up front to define the correct components. But once the component library and the detailed 3D model are built, the time needed in the construction documents phase will go down dramatically."

The firm focuses on energy-sensitive design; ultimately, it plans to develop strong links between building models and existing analysis software for energy, daylighting, and acoustics. This will enable the architects to apply analyses without reformatting and reentering the building data.

Eventually, Dietrick says, the firm will develop a large library that will embody, in effect, its collective knowledge about building components and construction methods. "It's not always possible to schedule the ideal team," he adds, "but we can benefit from the expertise of everyone in the firm because the components they have built for other projects will be part of our knowledge management system."

For now, making this new process work requires teamwork between the junior designers, who are more facile with modeling, and the senior designers, who know more about design and construction technology.

Changing roles

At Hellmuth, Obata + Kassabaum in San Francisco, chief information officer Ken Young, AIA, is evaluating the firm's entry into the world of object-oriented design software through Autodesk's AutoCAD Architectural Desktop. Although HOK is already a leader in promoting object-oriented software, Young admits it is difficult to take the needed time to redesign future processes while under everyday work pressures. Autodesk is helping to ease the transition by integrating new object-oriented software within the existing Auto-CAD R14 and other architectural applications.

As this software becomes more common and more widely used, architects will learn to see their design work as a kind of database, instead of as independent, labor-intensive documents. As a result, senior designers will be able to make decisions earlier in the process by interacting directly with the software tools.

There's a potential downside to this new way of working. It's likely that there will be less work for inexperienced architects and interns as the intelligent software eradicates the need for the menial work normally relegated to them. This suggests that the nature of mentorship will need to be reevaluated to give junior staff alternative ways to learn.

A less labor-intensive process may also change the way architects charge for their services, since producing construction documents will take less time but give the client more long-term value. "The client will receive a valuable database tha will serve for the life of the building," Young says. "If we make sure they compensate for it correctly, this could have significant economic ramifications for the profession."

Young cautions that preparing for object technology should not be left up to a few adventurous firms. "We're not going to reap all the advantages of this technology until the majority of the profession is on the same page," he says. "It's still early enough in the process that anyone who wants to get involved can help set the direction in which the profession will evolve as a resul of the new technologies. Now is the time to start learning how to use these tools properly and to figure out how they will affect our processes." ■

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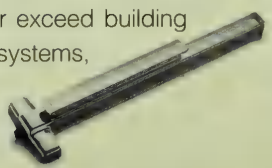
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VAN GOGH WORKS SET TO RETURN TO A REVAMPED AND EXPANDED HOME

The renovation and expansion of Amsterdam's Van Gogh Museum is entering its final phase. The world's most comprehensive collection of works by Vincent van Gogh has been housed since its opening in 1973 in a distinctive building of interlocking cubes, designed by Dutch architect Gerrit Rietveld (1888–1964) and built after his death.

But the museum, built to accommodate just 70,000 visitors per year, has been taxed beyond its capacity for many years; in 1997, it drew more than 1 million visitors.

Now a new, 55,000-square-foot wing, designed by Japanese architect Kisho Kurokawa, is being readied to house temporary exhibitions, while the extensively renovated Rietveld building will continue to house the permanent collection. (Many of the paintings have been traveling during the revamping, in an exhibition held at the National Gallery of Art in Washington, D.C., among other venues.)

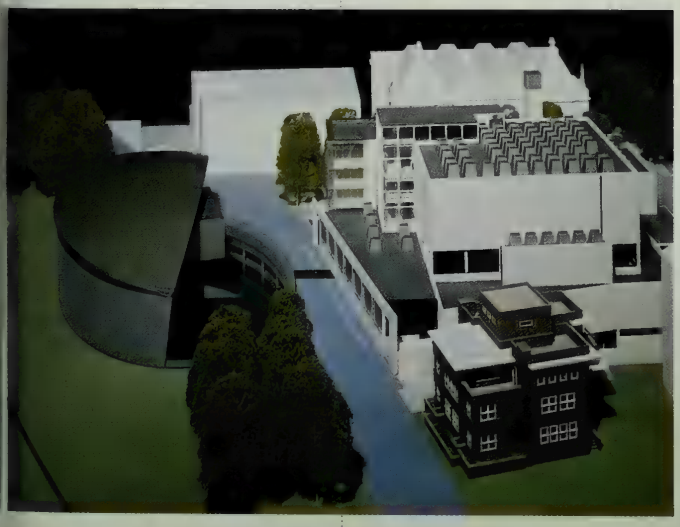
East meets West

Kurokawa says his design is an attempt to forge a symbiotic relationship between Japanese and European design principles. He has placed his new wing on an elliptical plot, with half the ellipse occupied by the stone and titanium-clad, 45-foot-high building and the other half occupied by a garden and pond.

The building, funded by a $20 million gift from Japan's Yasuda Fire & Marine Insurance Company, stands apart from the Rietveld building, with the garden forming a visual link between the two and an underground passageway providing the physical connection. An aluminum cube, partly protruding from the flat wall facing the Rietveld building, houses the print collection.

The Amsterdam-based firm of Greiner Van Goor has taken on the Rietveld renovation, which includes the redesign of the public foyer and ground-floor area, construction of the connection between the old wing and the new, and new office space.

The museum is scheduled to reopen on June 24 with a show focusing on Vincent Van Gogh's younger brother, Theo. Later in the year, Amsterdam will celebrate its completely refurbished, auto-free Museumplein, around which the Van Gogh Museum, the Rijksmuseum, the soon-to-be-renovated Municipal Museum, and the Concert Hall are clustered. *Jim Wake*



A TALE OF TWO STATIONS **Michigan Central Station in Detroit and New York's Grand Central Terminal were both constructed in 1913 from designs by Warren and Wetmore. But the current scenarios of the two buildings could scarcely be more dissimilar. While Grand Central is lauded for an extensive renovation project concluded last year (see story, page 84), Michigan Central is now run-down and isolated. The cavernous space contains three vaults, held up by columns, that articulate the main hall, which is lit by three large, iron-framed windows. On sunny days, lunettes on both ends bring in a flood of light. But over the years, windowpanes have been broken, the iron roof has gotten rusty, and glass and plaster have piled up.**



The building's current owner, the Michigan Central Depot Limited Partnership, is reportedly considering several options. But for now, the station serves as an art gallery of sorts; poetry, paintings, and graffiti have appeared, and in December, a sculptor placed a small figure in the station: a standing woman, frozen in place. ***Camilo Jose Vergara***

AT AIA, GORE PLEDGES SUPPORT FOR MORE "LIVABLE" COMMUNITIES

Sounding a probable presidential campaign theme, Vice President Al Gore allied himself with "the livability movement" in a January speech at AIA headquarters in Washington. He proposed "by far the single largest investment in 'smart growth' and sound community planning in all of our nation's history."

By embracing historic neighborhoods as well as new suburbs, where proximity to employment and day care would allow residents to replace commuting time with family time, Gore appealed to city dwellers and suburbanites, preservationists and developers, champions of family values and families on welfare. The vice president also equated smart growth with smart business.

"Livability doesn't just generate common sense, it generates dollars and cents," he said, noting that companies often locate where "quality of life is high; that is where qualified people want to live."

Attempting to clarify the federal government's role as neither a "beauty commissar" nor a land-use planner, Gore said, "It is our job to learn from communities' successes" and provide the resources needed to preserve green spaces, ease traffic congestion, and promote regional cooperation.

He proposed a package of broad initiatives, as part of the Clinton Administration's fiscal 2000 budget proposal. Most ambitious is a five-year, $700 million Better America Bonds program enabling lenders to claim tax credits if they give interest-free loans. Gore claimed that the initiative, aimed at preserving parks and open spaces, protecting water supplies, and recycling abandoned industrial sites, would generate as much as $10 billion in new investments in these areas.

In a separate initiative, up to $6.1 billion would go to communities to develop alternatives to clogged highways. Gore called this "the single highest investment in public transit in the history of our country." An additional $1.6 billion will go to state and local efforts to reduce pollution and congestion.

In a final recommendation, Gore said schools and civic buildings should return to their pre–World War II role as "anchor stones for the architecture of community." *Andrea Oppenheimer Dean*



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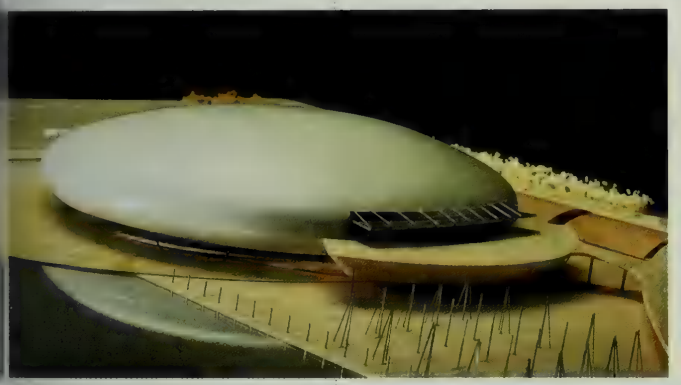
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AN ALL-STAR CAST DESIGNS GUADALAJARA'S MEGAPROJECT

After years of architectural silence in the city that gave birth to Luis Barragán, the greatest Mexican architect of this century, a proposed cultural and business center is spurring activity in Guadalajara. Twelve major architects are involved with the project, the vision of businessman Jorge Vergara, owner of vitamin-drink maker Grupo Omnilife, and work is ready to begin soon.

Plans for Vergara's center, which covers more than 750 acres, range from fairgrounds and a convention center to a new university and a *palenque*, a traditional cockfighting ring, which here will be used for other types of entertainment.

Overall, the project is intended to function as a veritable museum of contemporary architecture. It is being led by TEN Arquitectos



(Enrique Norten and Bernardo Gomez-Pimienta), who did the master plan and designed the convention and exhibition center (above).

Among the other architects involved are Carme Pinós of Barcelona, who will likely do the fairgrounds; Morphosis (Thom Mayne) of Los Angeles, the palenque; Coop Himmelblau (Wolf Prix) of Vienna, a mall and movie theaters; Daniel Libeskind of Berlin, the university; Tod Williams and Billie Tsien of New York, an amphitheater; Frank Gehry of Los Angeles, who is considering designing some of the theaters; Toyo Ito of Tokyo, a museum; Steven Holl of New York, housing and a hotel; Jean Nouvel of Paris, Omnilife's new corporate headquarters; and Philip Johnson, a children's museum.

Libeskind's university is structured in four eight-level prisms, which intersect and form patios. Each prism is of a different material and represents a different culture. Holl's proposal consists of two-story apartments interlaced in an L shape, developed around five patios that respond to the forms of the adjacent hotel.

Thom Mayne's 6,000-capacity covered palenque is a truncated, inverted cone anchored to the ground; it recalls the inclined planes of pre-Hispanic architecture. Williams and Tsien's amphitheater likewise uses inclined planes; their theater will seat 8,000.

Toyo Ito's museum is a delicate, 240-meter-long prism enclosed by glass, with intermediate screens for projecting images. The simplicity of his proposal lends itself to Asian subtlety, and a meditation room is included as part of the plans.

TEN's convention center is a 780-foot-long oval featuring a fluid play of elliptical perimeter ramps, which enclose the central part of the exposition hall. A skeletal covering supports the translucent Teflon-coated skin.

Work on selected parts of the project starts this month, with a major push slated to begin in December. Completion is expected in 2003. *Miquel Adrià*



BOSTON'S CITY HALL PLAZA EDGES NEARER TO OVERHAUL

Boston's vast City Hall Plaza is getting closer to a major renovation. The plaza is the legacy of an urban renewal project that leveled a huge section of old Boston in the early 1960s, with the goal of revitalizing a weak economy. Now that Boston has revived financially, the city is acting to make its 1960s public spaces more livable.

The redesign is under the aegis of the private, nonprofit Trust for City Hall Plaza, chaired by developer Norman B. Leventhal. Leventhal organized the highly successful creation of Boston's Post Office Square, completed in 1991 to designs by Ellenzweig Associates of Cambridge and the Halvorson Company of Boston. The public control and private financing of that project are the models for the much bigger City Hall Plaza, where $25 million of capital improvements, as well as ongoing maintenance, are expected to be funded mainly by private sources, though the General Services Administration will likely become involved.

The new process depends on consensus building; multiple public entities, civic and private groups, and businesses have had to agree in order for the project to go forward. A major piece could be falling into place now that the GSA is considering demolishing the long, low wing of its 1966 structure on the north side of the plaza, designed by The Architects Collaborative (left in photo above). The GSA had opposed plans for a new hotel on this site, but the agency now appears to be amenable to construction of the hotel along with a new office tower of its own.

The City Hall remains

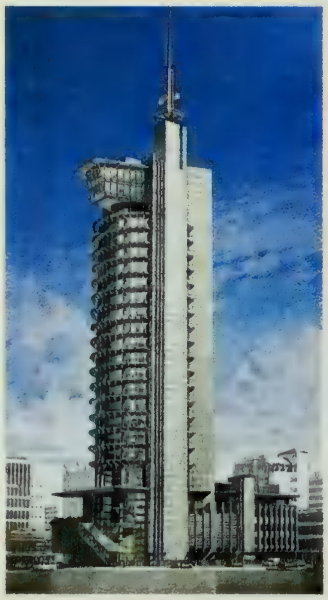
The centerpiece of the plaza will continue to be Kallmann, McKinnell & Knowles' Brutalist City Hall—a building admired among Boston architects but disliked by many others, including Mayor Menino, who last year proposed to sell the building and move out (he did not follow through). Proposals for renovating City Hall include replacing grade-level parking with commercial space, glazing its light well to create an atrium, and making a new ceremonial entry accessible to vehicles.

In addition to the new hotel, other elements of the trust's proposed design include a tree-shaded green, a glass-enclosed winter garden, and an interactive fountain covering nearly half an acre. Hanover Street, one of 18 local streets eliminated in the 1960s, is to be rebuilt, rejoining the plaza to the historic North End.

Cambridge architects Chan Krieger & Associates and landscape architects Hargreaves Associates designed the trust's various improvement proposals, while Boston architects Koetter Kim and Associates Inc. designed the proposals for redevelopment of the GSA properties. *Jonathan Hale*

FAR FROM THE LOOP: CHICAGO FIRM GOES TO MAURITIUS

Loebl Schlossman & Hackl/Hague Richards, a 100-person Chicago firm, continues to land work far from home. In the past five years, it has won five of seven international competitions it entered for projects in China, Chile, and, most recently, Mauritius, an island nation located in the Indian Ocean, 500 miles east of Madagascar. The firm's scheme for the Port Louis headquarters of the Bank of Mauritius, the country's national bank, features a 200,000-square-foot, 23-story cylindrical tower whose base abuts two existing low-rise bank buildings. The firm linked these together and incorporated them into the new design at the client's request. Rather than downplay the difference between new construction and old with a uniform exterior, the firm gave the smaller structures a layered facade treatment that contrasts with the smoother surface of the glass-and-granite-clad tower.



Sensitive to potential criticism that they have created "a parachute building, something from the West dropped into the culture," firm principal Donald J. Hackl, FAIA, notes that the "only vernacular in Mauritius—a French colonial style in residential buildings—wasn't appropriate for a tall building. We created a cylindrical element, a traditional form which is stable, efficient, and timeless." The top two floors, he added, designated for boardrooms and offices of the Governor of Mauritius, form a wedge, a shape implying "an aggressive posture, movement to the future."

Designing for a tropical climate, the firm ringed the tower with sunshades that also function as catwalks for maintenance crews. The program also required spaces for daily food operations and special events, which Hackl and his associates combined in a single, two-story space leading to a rooftop garden. The project, budgeted at $40 million, is scheduled for completion in September 2000. *Thomas Connors*

SEATTLE'S MEANY HOTEL RETURNS TO PAST DESIGN GLORIES

When designed by architect Robert C. Reamer in 1931, the Edmond Meany Hotel in Seattle was a model of American Art Deco form. Showcased in a portfolio of apartment and residential hotel buildings in the March 1932 issue of *Architectural Record*, six years later it was among 100 buildings deemed representative of distinguished American architecture in a traveling AIA exhibition.

Over the next 60 years the structure suffered from unfortunate redesigns inside and out, but a new $5 million renovation by architects NBBJ, for client Starwood Lodging Corp., has allowed the Meany to reclaim its original integrity.

The 18-story hotel, named in honor of a popular professor at the University of Washington, was the first continuously poured slip-formed concrete structure in the Northwest. It also represented the last major project completed by Reamer, an Eastern architect who moved west to build such projects as the Fifth Avenue Theater in Seattle and Old Faithful Lodge in Yellowstone National Park.

During the recent renovation, the project team "was responsive to the various surprises found during the demolition and construction phases," says NBBJ principal Rysia Suchecka, Assoc. AIA. The architects uncovered and then restored the



main lobby's original terrazzo floors, original staircase, colonnade, and mezzanine level, which had all been obscured by the many previous interventions.

"Our main goal was to restore the clarity of the interior spaces and reinstate the original perspectives created by Reamer," says project architect James Skog.

Wherever feasible, existing design motifs and materials were reused and complemented with new details such as custom metal screens and railings. A new café was added at the lobby level to encourage more interaction with the neighboring streets, and the entire infrastructure, including guest room telecommunications, was upgraded. Throughout, contemporary furnishings and finishes share an affinity with Art Deco without creating a period piece.

The Meany's concrete facade was pressure-washed and treated to prevent further seepage, while a new base color of deep green is augmented by the original chevron-patterned ornamentation, which was painted silver.

As a final nod to Reamer, the typography of new exterior signage is based on his original lettering, while supergraphics along one elevation also reinterpret his designs. *William Weathersby Jr.*

NEW YORKERS IN THE WILDERNESS **New York City architects Dennis Wedlick and Robert A.M. Stern are going back to traditional Western American styles for a project in Colorado. A new development called Aspen Highland Village, a ski resort being built by Hines Resort Development with an eye to opening in 2001, will include a conglomeration of retail shops, restaurants, condominiums, and various skiing and tourist facilities designed by Stern, flanked on the south and north by Wedlick's Marron and Thunderbowl townhome neighborhoods.**

Stern's design for the village was inspired by National Park buildings dating from early in the century—such as Old Faithful Lodge (see story at right) in Yellowstone—along with traditional European ski villages. The resort will rely on a small scale to create a pedestrian-friendly, neighborhood feel, and will include many stone walls and exposed rafters and beams, as dictated by the requirements set by Hines.

Wedlick, a protégé of Philip Johnson, worked within the style guidelines developed by Stern and set out to capitalize on the site's views and abundant sunlight. His 32 ski-in/ski-out townhomes will include dry-laid stone walls and rusticated siding, and wood roofs with large overhangs. The residences will be clustered in groups of two or three and arranged in a cloverleaf pattern with each unit facing a different direction, enabling each home to take optimum advantage of the surrounding views. "The developer wanted each unit to have an individual feel," says Wedlick. "We were able to do this while staying within the rustic parameters." *Soren Larson*

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ROGERS COURTS CONTROVERSY

According to *The Architects' Journal* (London), Richard Rogers is bloody mad that newspapers have reported his new courthouse in Bordeaux, France, to be "non-functional" and that the architect may be sued over cracked glass. "It is called slander by innuendo . . . the client has said it is totally functional and I'm told it is working very well," Rogers told the magazine. Nearly 20 of the 74 glass fins on the building's facade have cracked, however, and the French justice ministry commissioned Ove Arup to investigate why. Arup's reports were to be confidential, but Rogers says that the problem was traced to deformations in the attaching plates. A solution is being worked out, he says. Meanwhile, filters covering the glass fins ensure that no one will get hurt if they break.

QUIET WORKER

The work of French architect Jacques Hondelatte, celebrated in the November issue of *L'Architecture d'Aujourd'hui* (Paris), suffers a lack of recognition, perhaps because it's so hard to visualize, the magazine says. The architect relies almost exclusively on plans to represent projects; sections and elevations are rarely utilized. He leaves out direction and scale, and is spare with technical details because they are "implicit." "Perhaps he makes his projects difficult to access [to] encourage people to actually look at how they work," writes Marc Emery. "At a time when hype and overblown values have moved in all around us, this is little more than basic wisdom."

STATIC ART

Every other art form has experienced its radical transformations, writes Ole Bouman in the November *Archis* (Rotterdam), so why is it that architectural photography remains so stubbornly classical? "It is exclusively make-believe imagery; as if architecture is clean, unaffected, unused, clear-sighted," he writes. "With exceptions, architectural photography has persistently denied the cultural history of this entire century." Unfortunately, architectural photography is subject to the authority of architects, who are often its patrons, inhibiting the field's journalistic potential.

GATT GOOD FOR BWB'S

If Malaysia goes ahead and implements the General Agreement on Tariffs and Trade (GATT), Malaysian architects will lose out, says architect Tuan Hj Mohd Fazillah Ali. Hj Fazillah told *Architecture Malaysia* (Kuala Lumpur) that local architects just can't compete yet with experienced foreign architects. "There also seems to be prejudice on the part of local clients and even the government that 'whites' are better," he said. He suggests that one way to compete with the "Big White Boys," or BWB's, is to specialize. Arkitek FAA, Hj Fazillah's own firm, for instance, is one of the country's most successful designers of sports and education facilities.

DESERT BLOOM

"Vegas has gone green," writes Paul Davies of the city's newest resort hotel, the $1.6 billion Bellagio, featured in the December issue of *Blueprint* (London). Inside the 3,000-room hotel, which is themed after the village of Bellagio on Lake Como, an atrium displays 20,000 real chrysanthemums. The flowers are always fresh; they're replaced daily. *—compiled by David Simon Morton*

HONG KONG'S LANDFILL IDEAS RUNNING INTO OPPOSITION

Landfill, which in Hong Kong is euphemistically called "reclaimed land," has traditionally been a major focus of the city's infamously fast-paced development. With future building now stalled by the Asia-wide recession, government-sponsored landfill projects represent one of the few areas of planned growth. But recently, an unprecedented chorus of objections to two such projects has signaled a shift in public attitude toward landfill.

The reclaimed land projects are driven by an aggressive government program for infrastructure development and a commitment to building both public and private housing for an expanding population. Reclaimed land provides centrally located, flat sites, which are auctioned off by the government. Current plans include 3,205 acres of future landfill over 14 sites, which the government sees as key to urban renewal since it will relieve congestion and provide space to house those displaced by renewal.

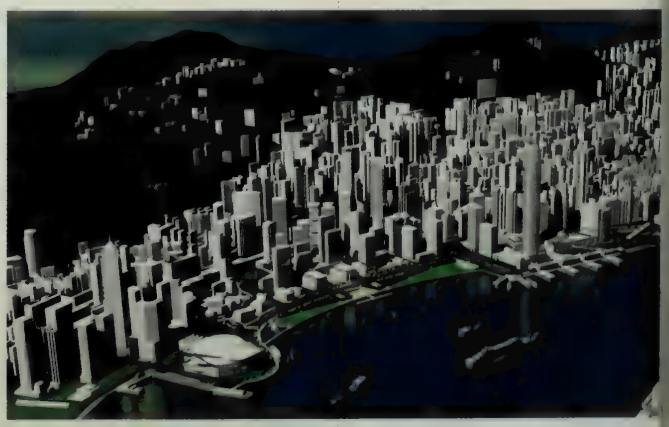
Concern for the harbor

But concern over the design quality of some of the developments, along with their economic and environmental consequences, has created an alliance of diverse groups opposed to filling in more of picturesque Victoria Harbor. The 1,431-acre South East Kowloon development would fill in 739 acres of the harbor surrounding the now defunct Kai Tak Airport to build housing for 320,000 people; the two-month period for public comment on the plan resulted in over 300 formal objections, an unprecedented amount.

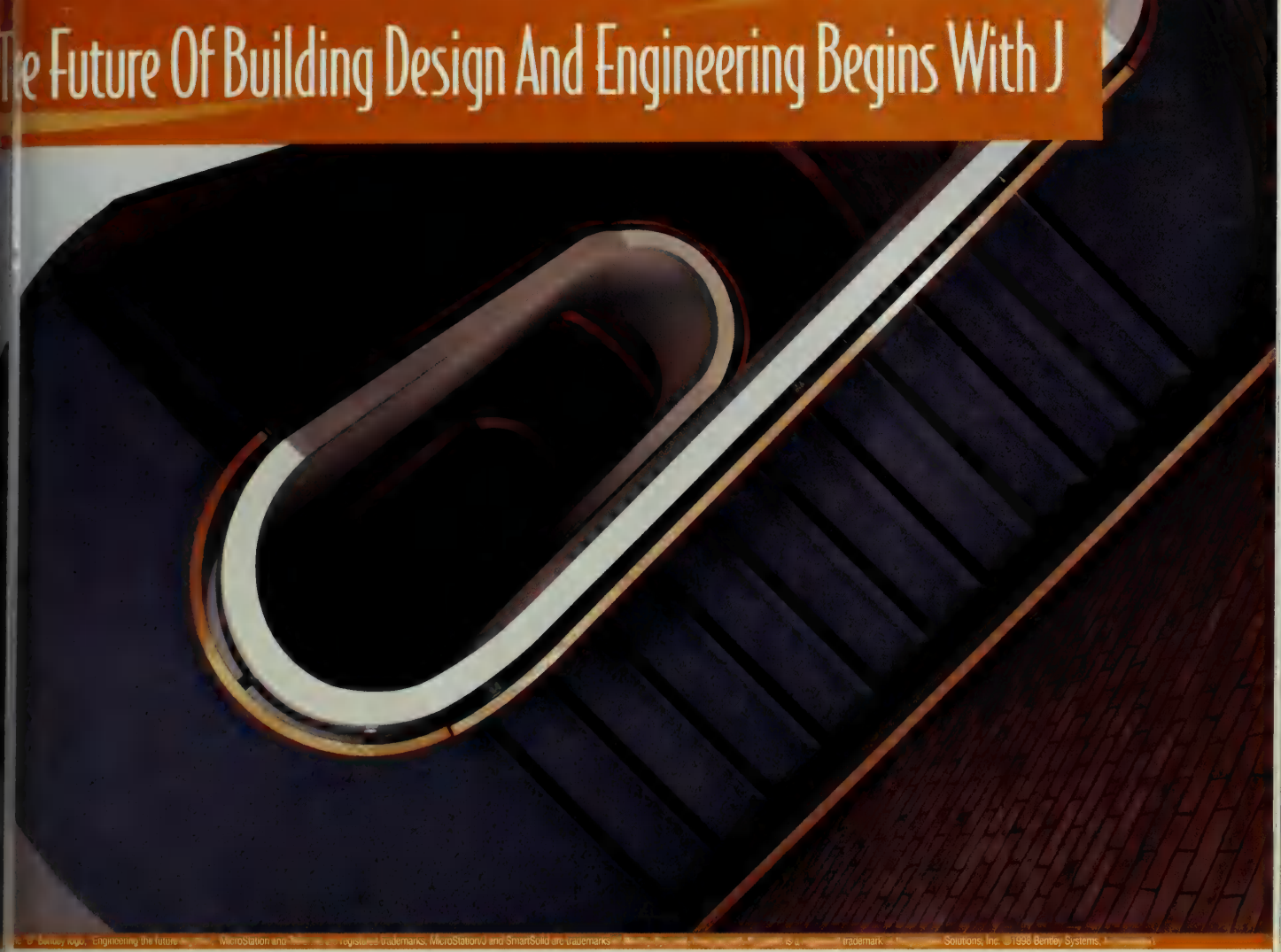
Across the harbor, adjacent to Hong Kong's Central Business District, the 220-acre Central-Wan Chai reclamation also received objections, coming from the general public as well as environmental groups, the Hong Kong Institute of Architects (HKIA), the Hong Kong Institute of Engineers, and some of Hong Kong's major developers, including Swire Properties, Hongkong Land, and Great Eagle Holdings. Several had alternative plans; the HKIA plan reduced the landfill by half, reflecting what spokesman Cheung Kwong-wing calls "the strong belief that Victoria Harbor is an invaluable asset."

Swire Properties wanted to "act as a catalyst for a change in the thought process," according to managing director Keith Kerr, when it hired Skidmore, Owings & Merrill to create a plan (below) with only 40 acres of landfill. "Without the harbor what is Hong Kong?" asks Winston Chu, chairman of the Society for the Protection of the Harbour.

Responding to the outcry, the Legislative Council has unanimously rejected the government plan, denying funding for the next stage of planning, and the government has since backed down, agreeing to rework its strategy in order to minimize landfill. *Jack Robbins*



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SHOPPING AND HOUSING MIX IN NEW KANSAS CITY MALL

Shopping malls are known to siphon crowds away from Main Street, but a retail-based development planned for Kansas City is set to compete with nearby suburbs when it offers locals both shopping and housing.

The new Towers at Zona Rosa—sited just 10 minutes from downtown—will include one- and two-bedroom loft-style apartments situated atop boutiques and cafés. Anchor stores in the 24,000- to 30,000-square-foot range are also planned, and project architect Bill Fowler of Gould Evans Goodman Associates says interest among potential retailers is strong.

Not the typical developer

Inspiration for this unconventional development on a former agricultural site comes from an award-winning documentary filmmaker and professor raised on the land. Not interested in a straightforward neighborhood strip mall, she has instead planned what her architect describes as a veritable community, featuring sidewalks paved with colored concrete, decorative street lamps, and sidewalk café tables with market umbrellas. Although apartment residents will use underground lots secreted below the buildings' retail level, pedestrian-oriented streets will permit parallel parking.

Similarly, Kansas City's historic and successful Country Club Plaza, which sparked copycat shopping villages across the United States, utilizes on-street parking and was developed without the setbacks now required at suburban retail strips. Fowler said the plaza has proven an indispensable example in discussions with the city—especially since the proposed mall is among the first in the area to follow progressive planning principles. Fowler says city agencies have granted approvals and variances to give Zona Rosa its pedestrian-oriented and ecologically progressive assets.

The development will host indigenous plants, rainwater will be collected on-site, and an area on the northern edge will remain undeveloped. The architects also hope to link with nearby residential streets—despite the fact that for many suburbanites the horror of living adjacent to a mall is second only to the idea of living in one. "We are convinced the neighbors will want to connect. It's a matter of being able to let the kids walk to the store," Fowler says. *Craig Kellogg*

SOLAR-PANELED COMPLEX IS UNIQUE IN CENTRAL EUROPE

The conversion of a 30-year-old apartment tower in Budapest's Budakeszi area into an energy-efficient solar-paneled complex could shine new light on architectural design in Hungary and possibly the rest of Central Europe. If the project goes through, the building will become the region's first solar-powered high-rise structure.

A proposal put forth by Energy Efficiency Development Ltd., the general agent in Hungary for BP Solar Ltd., calls for the application of tinted photovoltaic (PV) panels to the facade of the 10-story tower and the placing of a domed PV system on the roof, giving the structure a futuristic look.

The proposal offers two options. The first utilizes a rainscreen system incorporating a glazed PV thermal wall on the southeast and southwest faces of the tower and a glazed PV canopy over the entrance area. Collected heat would be transferred to the roof level to support solar thermal collectors, which would heat water for the building. "This is the most sophisticated version; the system that provides the most electricity," says Charles Cook, Energy Efficiency's managing director.

The second option, says Cook, "is a slightly less adventurous design that minimizes installation costs but still provides sufficient PV electricity to make a significant contribution toward the electrical load of the building. It also does not provide as exciting an appearance as the first option."

The building, located among sylvan hills on the Buda side of the Danube, belongs to the state-owned real estate firm CD Hungary and is currently home to members of the foreign diplomatic corps. Because CD is undergoing management changes following the election of a new government last May, no decision is expected to be made for four to six weeks. *Carl Kovac*

SENIORS WITH STYLE **Conforming to a flatiron footprint, Berkeley-based Kava Massih Architects has designed the Avalon, 67 units of low-income senior housing in Emeryville, California, on a site that was originally the city's main transit terminal. When Massih was called in, the site held two buildings—a hotel and a bank—and the architects produced a scheme in which the existing structures were refurbished and vertically extended. But the cost of bracing the brick walls and upgrading the openings was prohibitive—adding an extra $1 million to the $5 million budget—and the developers, Catellus & EDALDC, opted for construction of a new four-story, 55,000-square-foot building instead. It is slated for completion next spring. "The triangle dynamic required special considerations for residential [design]," says Kava Massih, who placed the larger units with balconies at the apex to maximize the end space and overhung the property line with bays to gain width.**



In addition, the building's location between two converging streets of diverse character dictated different side elevations. On the west, San Pablo Avenue is a major East Bay artery, and "breaking up that elevation into traditional residential bays would have been inappropriate for a civic-scaled street," explains Massih. The design reduces the scale and "keeps it from looking too institutional and old-folksy." A single 90-foot bay of wood siding, painted yellow, encases three four-window blocks set into corrugated steel.

On the opposite side, five identical steel-framed windows protrude from the taupe-stuccoed surface. Notes Massih, "I wanted to maintain a connection with the area, and [Bay Area] Victorians all have windows that nicely contrast with the building's plane." In line with the boatlike configuration of the site and its marine setting near the base of the San Francisco–Oakland Bay Bridge, the apex is a column of curved balconies made of bent perforated steel. The balconies—as well as the roofscape, with its colored light scoops servicing a lower central courtyard—were designed to add a sculptural quality. ***Terry Bissell***



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JOSEPH ESHERICK, 1914–1998: A MODEST MAVERICK IN CALIFORNIA

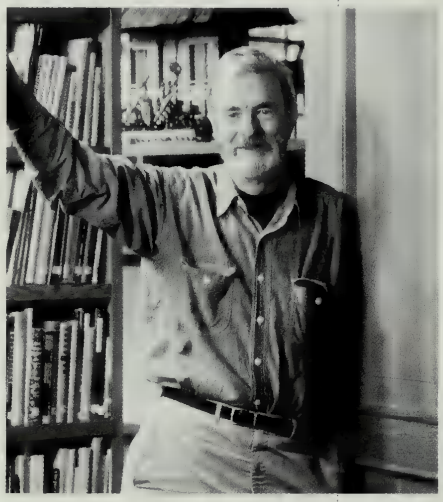
One of California architecture's most influential figures, Joseph Esherick, FAIA, died of heart failure late last year at the age of 83. Esherick designed some of the first Sea Ranch houses, debuted an early prototype for festival marketplaces at San Francisco's Cannery, and led the design team of the University of California at Berkeley's architecture building, where he taught for decades. To top it off, he won the Gold Medal from the AIA in 1989.

Esherick was also modest and didn't need to make waves—he lectured in New York only once. Esherick had recommended a student, Frederic Schwartz, to Denise Scott Brown, getting Schwartz his first job out of college; when Schwartz wanted to return the favor and phoned in 1994, asking Esherick to join Philip Johnson and Paul Rudolph in a lecture series at the Architectural League in Manhattan, Esherick resisted, saying: "I've never been invited by any of the New York schools," with a note of pride. "He had the smallest ego," Schwartz remembers. "When I first met him at Berkeley, I thought he was a janitor."

Influential houses

Esherick specialized in custom residential designs—though he kept his profile so low that clients thought they had designed their houses themselves. His wooden buildings built in the shingled Bay-region style were not always cheap, but even the biggest were modest, in the tradition of Gardner Dailey and William Wurster. Interior elevations would come first, and then Esherick would struggle to wrap them in facades and design foundations. One noted house, for a psychiatrist in Oakland, California, lurches straight off a hillside toward a sublime view of the Golden Gate Bridge, its hanging rooms propped on a pair of supports for a cast-concrete chimney.

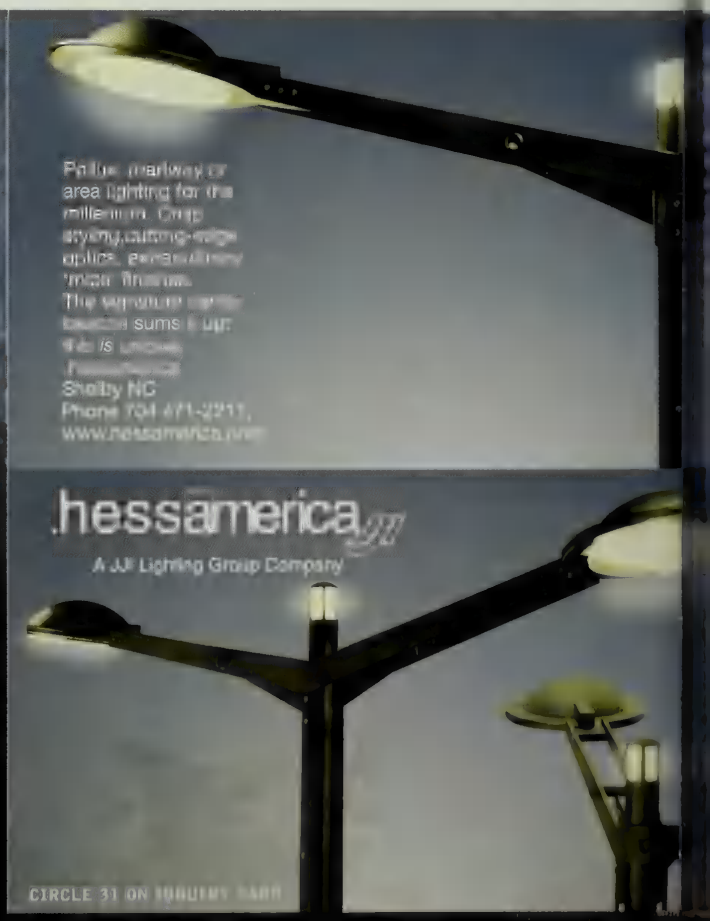
Esherick's use of concrete can be traced directly to Louis Kahn, to



whom a teen-aged Esherick was introduced by his uncle Wharton Esherick, a Philadelphia-area furniture-maker and artist. After his Philadelphia upbringing and a stint in World War II, Joseph Esherick founded a firm in 1946 in San Francisco that quickly grew to 35 people. By 1952, he had disbanded and moved to a storefront where his sole employee was George Homsey; again, the firm grew, and Esherick Homsey Dodge & Davis, perhaps best known for its Monterey Bay Aquarium, now employs 80.

Esherick's last project, an elementary school and community center in San Francisco's Tenderloin district, was a gift: he donated his services. Esherick is survived by his wife, Norma, their five children, three stepchildren, and many grandchildren. Contributions can be made to the Joseph Esherick fund at the University of California at Berkeley. *Craig Kellogg*



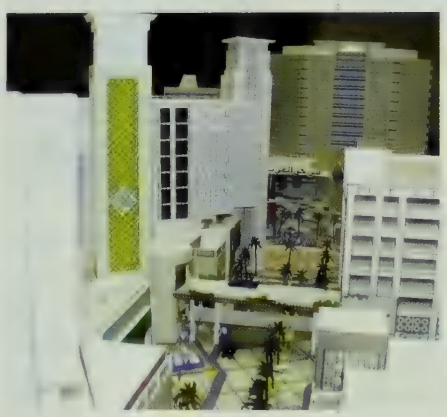


AMBITIOUS MALL REDEVELOPMENT ON THE RISE IN A GROWING DUBAI

A $375 million renovation and expansion of an aging shopping center is under way in downtown Dubai, commercial capital and principal seaport of the United Arab Emirates. While the Persian Gulf locale might conjure up images of exotic souks and other bazaars among narrow, winding streets, the new project's retail environment and designs wouldn't be out of place in Dallas or Detroit.

Abdulaziz Al Ghurair, whose prominent local mercantile and developer family initiated the project, predicts it "will be the most significant retail development in the Middle East," with 800,000 square feet of enclosed-street shopping and several anchor stores. It will also more than triple the size of the existing, 19-year-old shopping center—the first shopping mall in the Middle East—which the family also owns.

Other elements of the project include 500 long-term and 200 short-term serviced apartments



geared to visiting foreign executives and professionals working in Dubai; 300,000 square feet of office space; a 600-seat food court; a multiplex cinema; and parking for 3,500 cars. The renovation and construction of new retail and parking facilities are under way, with the rest to follow in a second phase.

The architects

NORR Limited Architects and Engineers of Toronto and RTKL International Ltd. of Baltimore were retained to jointly provide architectural, engineering, and interior design services. RTKL is new to Dubai, while NORR has a staff of 107 at its Dubai office, which it opened in 1990, followed recently by a smaller office in neighboring Qatar. NORR designed the National Bank of Dubai's corporate headquarters and the two-tower Emirates Project, among scores of other local commercial and institutional projects. At 54 stories, one of the two Emirates Project towers will be the tallest in the Middle East and Europe when it is completed in 2000.

Construction of the Al Ghurair redevelopment will be managed by Turner Steiner International of New York, until its scheduled completion in 2001. NORR, RTKL, and Turner principals and staff are now travelling frequently between Toronto, Baltimore, and Dubai, and they exchange files over a high-speed ISDN line.

NORR vice president Victor Smith notes the project is a "major component of Dubai's strategic plan to sustain the city's enviable track record as the leading tourist and shopping destination in the region."

The city's improvement plan also includes upgrading older parts of the city to meet world standards, with commercial and residential infill, sports facilities, other retail space, and a supermarket connected by new streetscapes, pedestrian walkways, and public plazas.

Albert Warson

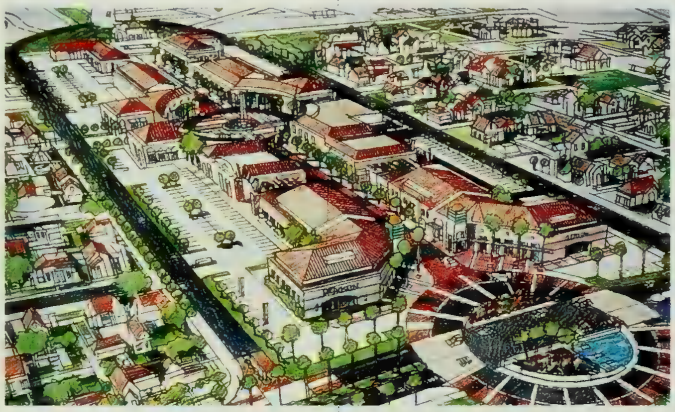




NEWS BRIEFS

Hurwitz departs AIA After a year on the job as the American Institute of Architects' executive vice president and chief executive officer, Mark W. Hurwitz left in January. According to a statement by AIA president Michael Stanton, "There were key conditions in our contract with Mark that were not fulfilled." Norman L. Koonce, FAIA, president of the American Architectural Foundation, will be interim CEO while a search takes place for a permanent successor. Meanwhile, L. William Chapin II, FAIA, will take over as interim president at the AAF. Hurwitz had come to the AIA from the Building Owners and Managers' Association International, where he was executive vice president.

Cooking with Graves Michael Graves has developed a line of kitchen accessories, which will be sold exclusively at the discount chain Target. The Graves Design Collection—including everything from spatulas to toasters to a $499 patio set—went on sale in late January at Target's 851 stores. Graves told the *New York Times* that the venture is "not licensing, but designing."



RTKL's vision for Chicureo Ciudad, a new community that will go up near Santiago, Chile.

Berlin's choice After an arduous, decade-long process, an agreement has finally been reached on a design for a Holocaust Memorial in Berlin. The plans—a field of stone pillars, a 65-foot-high wall of books, and a research center—are a blend of proposals by New York architect Peter Eisenman with touches requested by the government. The project seemed shaky last year when sculptor Richard Serra, who had worked with Eisenman, withdrew from the competition.

Recipe for Chile After winning an international competition, Dallas-based firm RTKL is preparing the master planning for Chicureo Ciudad, a new 3,000-acre city in Chile that will operate as a satellite of Santiago, the country's capital. The developer is a group of investors and landowners who have consolidated their real estate holdings to create the new com munity. RTKL, teamed with Santiago firm Schmidtz & Valdés Arquitectos, will design mid-rise office and civic buildings, retail centers, and housing; construction is expected to begin late this year. RTKL has also designed Riverside Office Center, a three-tower complex in Recife, Brazil. Work began this month.

Asia Society angst New York's Asia Society is planning to expand its headquarters, an Upper East Side building designed in 1981 by Edward Larrabee Barnes, FAIA. But the society's neighbors aren't gung-

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no about the project. Neighbors for the Neighborhood, a group of area citizens, is arguing that the renovation shouldn't be allowed, as its extensive use of glass for an atrium, among other touches, is out of context with the East 70th Street block. Voorsanger & Associates, designer of the addition, was sent back to the drawing board by the Landmarks Commission after a first proposal; at press time, the commission was set to debate the approval of a second, toned-down concept.

Norway says no more To reduce pollution and revive ailing downtowns, Norway has banned the construction of large shopping centers outside city center areas for five years. The ban covers any construction or expansion of shopping centers with more than 33,000 square feet of retail space. Norway has seen a sharp increase in shopping center construction in the past decade; the country now has about 500.

This week's tallest Add Melbourne, Australia, to the ever-changing list of cities laying claim to the world's tallest building. Plans have been announced for a $900 million, 120-story office tower to be designed by Denton Corker Marshall. Malaysia's Petronas Towers are the current titleholder.

Hollywood hopes The American Cinematheque, a nonprofit film forum, has opened new headquarters at the historic Egyptian Theater on a downtrodden stretch of Hollywood Boulevard in Los Angeles. The theater, which opened in 1922, had endured earthquake damage and was closed in 1992. It reopened after a remodeling effort overseen by Hodgetts & Fung.

A city hall comeback A thorough renovation of the San Francisco City Hall, designed in 1912 by Bakewell & Brown and modeled after Les Invalides in Paris, has been completed. Under the direction of principal architects Heller Manus, preservation architects Carey & Co., and others, the project included base isolation (the building was damaged in the 1989 earthquake), updated communications and infrastructure, new hearing rooms, and a new gilding of the dome.



The San Francisco City Hall's dome, with scaffolding during renovation.

The new Cook After a long battle and a referendum, Chicago is replacing its aging Cook County Hospital. Loebl Schlossman & Hackl/Hague Richards leads the team designing the $301.8 million replacement facility; the new 1.1 million-square-foot hospital is scheduled for completion in February 2002.

Hot design Frank Gehry's Guggenheim Bilbao continues to get attention beyond typical architectural forums. The video for Mariah Carey and Jermaine Dupri's hit "Sweetheart" was shot at the museum; Carey wears a silver metal-mesh outfit to match the decor. ■

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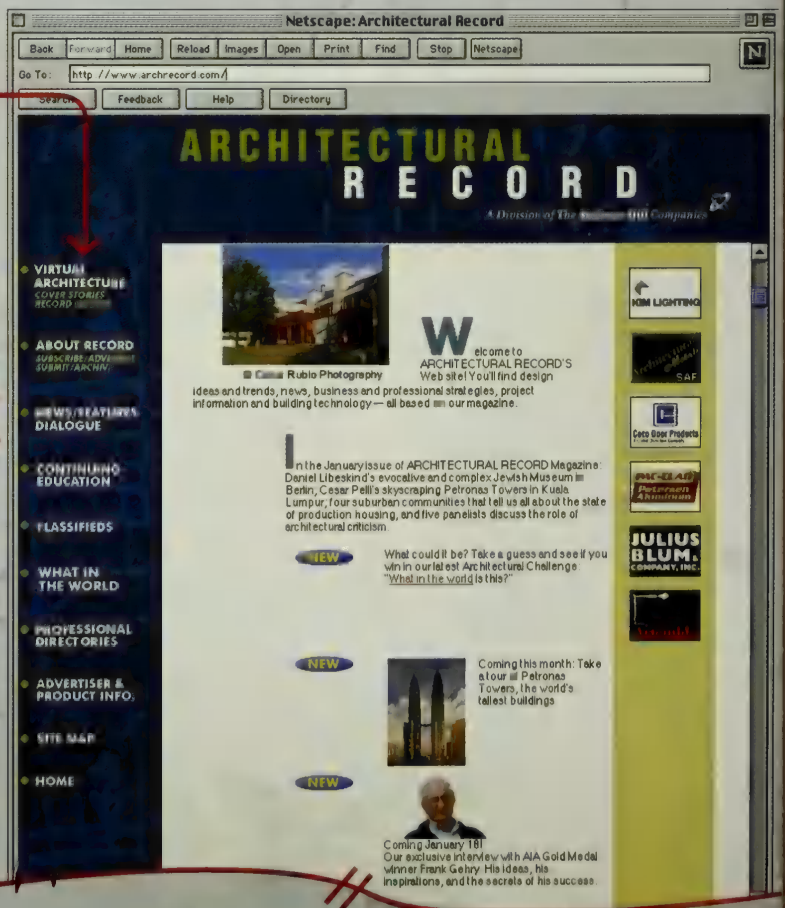
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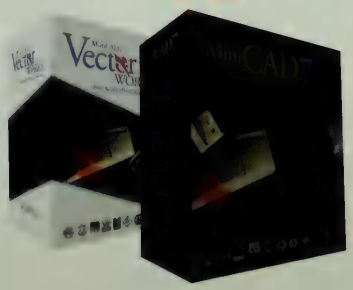


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DATES EVENTS

Calendar

Monuments of the Future: Designs by El Lissitzky
Los Angeles
Through February 21
Rare books, photography, and architectural and exhibition designs by the early-20th-century Russian artist demonstrate the continuity of his work throughout his career. Getty Center. 310/440-7300.

Transformations: Mixed-Media Assemblages by Keith Krueger
Washington, D.C.
Through February 26
Works by a local architect who uses discarded elements from buildings and construction sites in his compositions. AIA Headquarters Gallery. 202/638-3221.

The Cartoons of Roger K. Lewis
Washington, D.C.
Through February 28
More than 100 cartoons satirizing the state of architecture and urban design, originally published in the *Washington Post.* National Building Museum. 202/272-2448.

Design Ideas for New York's East River
New York City
Through February 28
On display are entries to the Van Alen Institute's ideas competition to transform the East River into public space, and the New East River Park Project by Reiser + Umemoto Architects. Van Alen Institute. 212/924-7000.

Unlimited by Design
New York City
Through March 21
An exhibition of products, services, and environments designed to meet the needs of people throughout their life spans, from toddlers to the elderly, demonstrates the effect design can have on the quality of life. Cooper-Hewitt National Design Museum. 212/849-8300.

Forgotten Gateway: The Abandoned Buildings of Ellis Island
Washington, D.C.
Through March 28
A photographic exhibition documenting the deterioration of the historic hospital complex on Ellis Island, which was untouched by the renovation that transformed the north side of the island. National Building Museum. 202/272-2448.

The Little Apple: Souvenir Buildings
New York City
Through March 28
On display is a collection of 125 miniature New York buildings, with the oldest souvenir dating from 1800. Museum of the City of New York. 212/534-1672.

Zigzags and Speed Stripes: The Art Deco Style
Pittsburgh
Through March 28
An exhibition surveying the impact of the Art Deco style on architecture and design, tracing the interwar phenomenon from zigzag moderne to streamlined moderne. The exhibition complements the permanent installation of *The Chariot of Aurora,* a gilded and lacquered relief from the SS *Normandie.* Carnegie Museum of Art. 412/622-3131.

Building the Empire State
New York City
Through March 31
A documentary look at the design and construction of Shreve, Lamb & Harmon's 1931 Empire State Building. Skyscraper Museum. 212/968-1961.

Architecture on the Rise: Renderings by Hughson Hawley
New York City
Through April 4
Watercolor drawings from 1880 to 1931 by a master renderer who offered a vision of the developing city. Museum of the City of New York. 212/534-1672.

Photography and Transformations: Venezia–Marghera
Montreal
Through April 25
The work of 15 Italian photographers who explore the relationship between historic Venice and the modern, industrialized, and polluted mainland port of Marghera nearby. Canadian Centre for Architecture. 514/939-7000.

Marion Mahony and Walter Burley Griffin
Sydney, Australia
Through May 2
This exhibition explores the professional and spiritual journey of architects Mahony and Griffin, from their years in Frank Lloyd Wright's office at the turn of the century through their work in Australia and India in the 1920s and 1930s. Powerhouse Museum. 011/61/2/217-0111.

National Roofing Contractors Association Convention
Phoenix
February 7–10
The NRCA hosts the largest roofing convention in the United States, attracting more than 8,000 attendees and 390 exhibitors. Phoenix Civic Plaza. For registration materials, call 800/323-9545 or visit www.roofonline.org. For fax-on-demand, call 888/455-6722 and request document 1203.

Designing in the Wright Style
Lexington, Mass.
February 13–September 6
This exhibition surveys the collaborative work of Frank Lloyd Wright and George Mann Niedecken, who designed furniture and interiors together during Wright's Prairie Style years. Museum of Our National Heritage. 781/861-6559.

Greenprints '99: Sustainable Communities by Design
Decatur, Ga.
February 22–23
A conference and trade show on environmentally appropriate building technology and sustainable community design, hosted by Southface Energy Institute and the Georgia Environmental Facilities Authority. Atlanta-Decatur Hotel and Conference Plaza. For more information, call 404/653-0606 or visit www.southface.org.

Inter Con '99
Orlando
February 24–28
A convention and trade show for the commercial interiors construction industry, sponsored by the Ceilings and Interior Systems Construction Association and *Interior Construction* magazine. Walt Disney World Coronado Springs Resort. Call 630/584-1919 or visit www.CISCA.org.

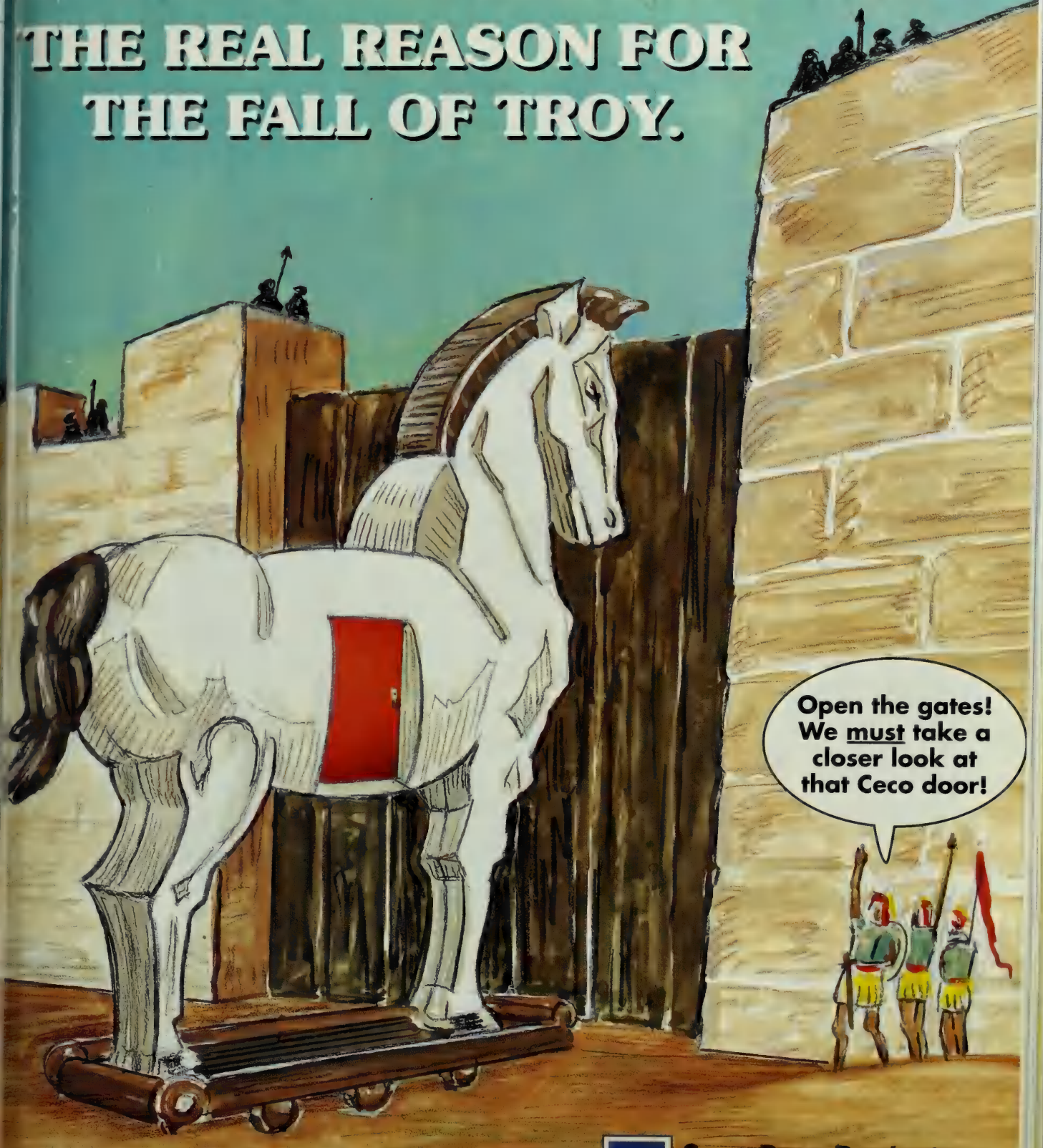
NeoCon South
Miami Beach
March 1–2
NeoCon West
Los Angeles
March 11–12
Two exhibitions showcasing products and services related to interior design and facilities management. Miami Beach Convention Center and Los Angeles Convention Center. For more information, visit www.designfestneoconsouth.com and www.neoconwest.com, or call 800/677-6278.

Archigram: Experimental Architecture, 1961–1974
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continued on page 69

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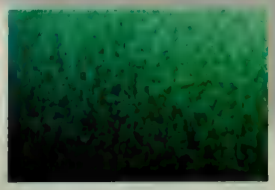
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American Institute of Architects National Convention
Dallas
May 6–9
The theme of this year's AIA convention, expected to draw as many as 14,000 people, is "Think Big, Make It Happen: Leadership in the New Millennium." Architects can earn all 36 Learning Units needed for AIA accreditation by attending seminars and exhibitor education sessions. Dallas Convention Center. For information on exhibiting, contact Hill, Holliday Exhibition Services at 617/572-3553.

Competitions

Encouraging Neighborhoods of Choice and Diversity
Registration deadline: February 15
Submission deadline: April 15
This competition seeks innovative and sustainable redevelopment strategies for a Baltimore neighborhood that has witnessed a dramatic decline in population. First prize for the winner is $10,000. For more information, call Rob Inerfeld at the Neighborhood Design Center, 410/233-9686, E-mail him at inerfeld@hotmail.com, or visit www.ndc-md.org.

NYSCA Project Grants
Application deadline: March 1
The Architecture, Planning and Design Program of the New York State Council on the Arts announces grants provided through its Independent Projects category. Grants of up to $10,000 for architects, designers, and scholars are available for projects that advance the field and contribute to the public's understanding of the designed environment. Open to New York State residents only. Contact Anne Van Ingen at 212/387-7013 or E-mail avaningen@nysca.org.

DuPont Benedictus Awards
Submission deadline: March 8 (professional architects); March 19 (students)
These awards, open to professional architects and students, recognize the use of laminated glass in commercial and residential projects. Winning architects receive a sculpture by glass artist Hans Godo Fräbel; winning students receive $15,000 for their programs. Contact Stephanie Vierra at the AIA, 202/626-7446, or vierras@aiamail.aia.org. Information is also available at www.dupont.com/safetyglass/benedictus/index.html.

Presidential Design Awards 2000
Entry and nomination deadline: April 8
The Presidential Awards for Design Excellence recognize works that have been sponsored, authorized, or commissioned by the U.S. Government and have been completed or in use between January 1, 1989 and January 1, 1999. There is no entry fee, and nominations are requested. Nominations are also requested for the Presidential Millennium Design Awards, which honor federal design projects completed in the 20th century that have made a significant contribution to the environment and quality of life in the U.S. For information, contact Thomas Grooms at the U.S. General Services Administration at 202/501-1888 or thomas.grooms@gsa.gov.

The Van Alen Institute Dinkeloo Fellowship
Submission deadline: May 7
A two-month stay at the American Academy in Rome will be awarded for the submission that best demonstrates how architecture and technology can be environmentally conscious. Open only to those who have graduated, or will graduate, from U.S. architecture degree programs between May 1990 and September 1999. For a competition packet, contact the Van Alen Institute at 212/924-7000, E-mail vanalen@vanalen.org, or write 30 West 22nd Street, New York, N.Y. 10010.

Envisioning California's Great Central Valley: Housing the Next 10 Million
Submission deadline: May 1
This ideas competition, to design less-land-intensive housing models and support urban planning implementation tools, will help local decision-makers deal more effectively with the projected growth of California's Central Valley. Open to students and professionals. Contact William Liskamm, AIA California Council, 916/448-9082, or visit www.aiacc.org.

Resort Concept Competition
Submission deadline: May 15
The San Francisco–based Valor Group is sponsoring a competition for the design of an environmentally sensitive, portable tent village. For more information, call 415/276-5958. ■

Please submit information for events and competitions at least six weeks prior to the magazine's publication date (March 15 for the May issue).

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How Places Affect People

BUILDINGS HAVE A HUGE INFLUENCE ON OUR MOOD AND PERFORMANCE. WHY HAVEN'T ARCHITECTS HEEDED THE FINDINGS OF ENVIRONMENTAL-BEHAVIORAL SCIENCE?

by Winifred Gallagher

To celebrate his new prosperity, an urban entrepreneur bought a historic brownstone. Soon after moving into his dream house, however, he became trapped in the nightmare of a serious clinical depression. Armchair analysts might surmise that the man was unable to deal with sudden success. His doctor, however, traced the problem to a less obvious origin.

When he descended from a sunny high-rise apartment to what amounted to a luxurious cave at the bottom of a dim canyon, the man had unwittingly triggered a bout of seasonal affective disorder (SAD). Often called winter depression, this neurochemical condition develops when a vulnerable person is deprived of adequate exposure to light, which most commonly occurs during the short days of the cold months.

The particulars of this mogul's illness are unusual, but in America's northern regions, SAD is a health problem of serious proportions. In the New York metropolitan area, 6 percent of residents are said to be afflicted by severe winter depression. When the victims of the milder "February Blues"—low energy and mood and disturbed patterns of eating and sleeping—are added in, however, half the region's population, or more than four million people, suffer from a recurring behavioral problem that has an environmental cause and cure: light.

Winifred Gallagher is the author of The Power of Place: How Our Surroundings Shape Our Thoughts, Emotions, and Actions *(Harper Perennial Library, 1994) among other works. She attended the University of Pennsylvania Graduate School of Architecture and now lives with her family in Manhattan and Long Eddy, New York.*

Architects have always considered light from the perspectives of aesthetics and visibility. But based on one simple observation—that office and apartment buildings in, say, New York City have the same fenestration pattern as those in Miami, where only 2 percent of the population suffers from SAD—it seems very few exploit light's influence on the way people feel and function. And what about the special light needs of night-shift employees, workaholics, and frequent flyers? Their schedules can simulate winter conditions in Alaska, inviting sleep and energy problems, if not actual depression.

For that matter, what about the lighting design challenges posed by extreme environments? Each winter in Alaska, as is the case in other far northern latitudes, nearly 10 percent of the population becomes seriously depressed and another 70 percent feels grumpy and lethargic. Yet in summer, when abundant light increases the incidence of mania worldwide, the nearly endless days can create insomnia and agitation, driving some Alaskans to wear sunglasses and line their windows with aluminum foil. (For bibliographical references and information concerning research alluded to in this article, see *The Handbook of Environmental Psychology,* edited by Daniel Stokols and Irwin Altman [Wiley, 1987].)

The proper placement

As the plight of the depressed townhouse owner demonstrates, extreme mini-environments can be found in any region. Even in temperate Virginia, a handsome scheme for a low, rambling house tucked deep into a heavily wooded site might be a blueprint for the blues. An understanding



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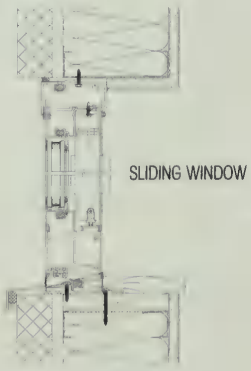
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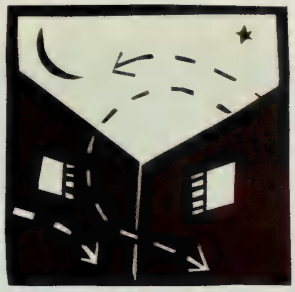
CIRCLE 44 ON INQUIRY CARD

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ARCHITECTS COULD SEE THEMSELVES AS HEALERS, PRESCRIBING DESIGNS RATHER THAN DRUGS.



of light's influence on human behavior is just one dimension of the emerging science of the ways in which places affect our thoughts, emotions, and actions. Diverse studies of how people work and learn, mingle with strangers, and recover from illness prodigiously document the importance of being in the right place.

For architects, the investigation of environments as agents in our lives, rather than mere backdrops, holds special promise. It's another tool for designing better buildings, of course, but this research also offers new ways to understand and communicate with clients. Since the social revolution that we call the '60s, demographic analyses have shown that Americans increasingly look to psychology for answers about how to live. Settings that help them feel and function better—by reducing stress, say, or promoting creativity, to say nothing of combatting depression—will have a strong appeal.

But architects, focused on their traditional aesthetic and practical concerns, have paid little attention to environmental-behavioral science. Just as they have thought of themselves as artists and builders, however, they now have the option of seeing themselves as healers of a kind, who prescribe design rather than drugs.

The science of setting

Compared to the more familiar warm-and-fuzzy psychotherapist, environmental psychologists are hardhats. They expose their subjects to physical stimuli—windows or blank walls, noise or silence—and measure the effects, using metabolic monitors, tests, or questionnaires.

Several broad principles of environmental-behavioral science raise many pertinent questions for architects. The most radical discovery about environment's effect on behavior is its sheer potency. A vivid illustration: simply passing a place associated with drugs causes addicts to undergo physiological changes that create craving. As the French term *habitué* suggests, we all react to certain environments like addicts, albeit less dramatically. A phenomenon known as "behavior setting" ensures that whatever our individual personalities or recent experience—a fight with a spouse at home, perhaps, or a happy occasion, like a promotion—we're apt to act businesslike in an office, reflective in a church or museum, and sociable in a restaurant.

In organizing our private lives, we exploit behavior setting to help summon up the self we want or need at a given time. To unwind after a hard day, we head for the workshop or custom kitchen. If we must complete the income tax returns, we don't lounge in bed surrounded by forms and receipts, but find a desk in a quiet room—or even make a special Saturday trip to the office. If architects truly understood the power of settings to help occupants to be the right self at the right time, many design formulas would undergo serious questioning.

People feel best in settings that, like parks and cars, foster a sense of control, impose few constraints, and offer multiple options. With these simple criteria in mind, consider the employees in a typical office, which increasingly means the large, open-plan sort that's cheapest to construct and operate. Seated in double-faced rows of built-in, partially partitioned "workstations" in which even the positions of phones and computers have been standardized, each shares intimate air space with at least five immediate neighbors.

The most serious problem posed by this setting is noise, or unwanted sound—where behavior is concerned, the most toxic environmental pollutant. The particular horror of noise is that unlike other such stressors, it both distracts and restricts its victims. We can read or talk if





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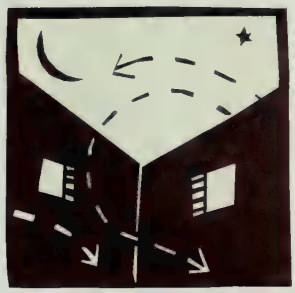
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CIRCLE 45 ON INQUIRY CARD

HALF OF ALL AMERICANS COMPLAIN THEY'RE DISTRACTED ON THE JOB BY COLLEAGUES' CONVERSATION.



our environment is too warm or bright or crowded for our liking, but not if we can't "hear ourselves think."

Among the measurable physiological and psychological consequences of this form of frustration are decreased sociability, concentration, and performance—a triple threat in the workplace. When we try, even unconsciously or with seeming success, to block out sound so that we can focus, the effort drains energy from our more worthwhile pursuits.

Because our evolution has made it impossible to ignore, others' speech is a particularly insidious form of noise pollution; half of all Americans complain that they're distracted on the job by colleagues' conversations. (Noise takes a toll on workers' productivity, but it exacts a steeper one from babies and small children who are trying to learn language; these youngsters must expend energy on dampening racket when they should be devoted to the nuances of speech.)

If employers and their architects could supply one environmental element that would improve their employees' efficiency, it would be peace and quiet. Considering the hidden price tag on large, open, "cost-effective" offices, the challenge for architects is to come up with alternative designs for economical workspaces that maximize rather than compromise workers' performance and well-being.

Points of difference

Ramps for the disabled are concrete symbols of society's relatively recent recognition that few settings work for all of the people all of the time. From a psychological perspective, however, certain groups have special needs that often go unacknowledged; they must adapt to what psychologists call a poor "person-environment fit."

For example, research on the rapidly increasing aged population yields a simple, striking finding of great importance: the elderly's activity and well-being strongly correlate with environments that don't treat them like invalids, but promote their control and autonomy. A chilling contrast: institutional residents whose privacy and independence are compromised by sharing a room and spending half their time in bed, whether asleep or awake.

At the other end, popular wisdom has it that youngsters, even infants, thrive on lots of stimulation. In fact, research shows that neurological immaturity means young children are easily excited and overwhelmed; confronted with excessive sensory input, they shut down and turn off rather than take in and turn on.

Many architects will remember all the fuss in educational as well as design circles over so-called open schools, which did away with traditional segmented classroom layouts. These vibrant buildings looked attractive to adults, yet by academic measures, they failed to live up to their promise. Numerous studies showed that compared to those who attended traditional institutions, students from these new schools performed the same or less well because they were subject to so many distractions, especially noise. A great deal of research on the best environments for kids can be summed up thus: small is beautiful.

To each his own

Although it sometimes concerns the needs of a whole group of people, the right environmental fit can be a highly individual matter as well. Where the design of private spaces is concerned, a client's satisfaction must largely depend on it. Yet variations in temperament—the human personality's more biological, heritable component—mean that two individuals in the same room may be sitting in different worlds.



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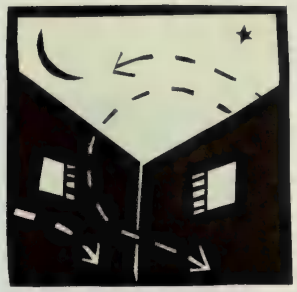
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CIRCLE 46 ON INQUIRY CARD

RESEARCH SHOWS THAT EVEN SMALL DOSES OF NATURE HAVE SALUBRIOUS EFFECTS ON BEHAVIOR.



For neurological reasons, some people, including many artists, academics, and others drawn to the life of the mind, have so much going on inside their heads that they need little in the way of external stimuli; they do best in restrained environments, such as hushed libraries and minimalist lofts, that protect from sensory overload. If they are to avoid boredom, others whose nervous systems idle very low require lots of external feedback, whether from a wall of video screens or a rock-climbing wall. One type of person is best served by a soothing sanctuary, another by a more stimuli-laden environment. In consultations with a client, architects can include questions about the level of external stimulation that's most comfortable for that individual. And when different temperaments share the same roof, as families do, the problem for designers is whether they can provide micro-environments that complement each type.

Temperament helps explain why some people are drawn to bucolic settings and others to cities. In urban environments, one of the greatest factors in how we feel and function is crime and the fear of it. Just as architects can use behavior-setting theory to design smart buildings, planners can use it to promote safe streets. In combatting urban crime, the most stunning recent breakthrough has been the vigorous policing of seemingly minor "quality of life" crimes.

Similarly, environmental research shows that it doesn't take much—peeling paint, some boarded-up windows, graffiti, a junked car—to set off the tragic chain reaction that leads to abandoned housing, arguably the single most powerful factor in urban decay, and the death of a once-vibrant street. Considering that seemingly subtle signals, even holiday lights and personalized mailboxes, can be more effective than locks and alarms in reducing crime, designers have many options when it comes to encouraging urban residents' territorial feelings and expressions.

The power of nature

On the rural side of the equation, it is a common concept that nature somehow restores us. The house plants and landscape pictures so ubiquitous in homes and offices attest to our reliance on its mood-altering and -stabilizing effects, as does our willingness to pay dearly for Arcadian views. In their analysis of nature's magic, researchers have made a discovery that's particularly important for our rapidly urbanizing, indoor world: a remedy for what psychologists call mental fatigue.

Staring at a computer all day is not exhausting in the same way as manual labor, yet people didn't evolve to sit still for hours, narrowly focused on accumulating electronic information. Simultaneously constrained and over-stimulated, we grow bleary and weary. As concentration dwindles, some feel irritable and begin to make so-called human errors. One quick cure for these symptoms, as prescient companies who choose to build their headquarters around garden courts know, is a nature break. Exposed to the gentle, beautiful patterns of plants, water, or clouds, we loosen up, slow down, and—at least figuratively— take time to smell the roses. In some important, mysterious sense, we go home, have a little rest, and return to the job able to focus again.

Extrapolating from some research on playgrounds, we may be more creative, too: kids are more active in hard-surfaced recreation facilities, but play more imaginatively in naturalistic parks. Happily, research shows that even small doses of nature have salubrious effects on behavior. Green things are among the luxuries in the shortest supply in poor urban neighborhoods, yet when public housing tenants have little garden plots, their increased feelings of mastery, pride, and sociability are matched by a decreased incidence of vandalism.

Nature can work its wonders through glass: windows that frame trees, clouds, or water rather than bricks and asphalt help surgery patients recuperate faster and with less pain medication, and workers to experience less stress and illness and more satisfaction on the job. Designers can use large and small doses of nature to balance the behavioral effects of urbanization and technology's increasing dominance of our daily environments. In the new global village, sophisticated people who have an international perspective on politics and economics, music and cuisine, are acquiring some new ideas about architecture as well.

According to the principles of *feng shui* (pronounced fung shway), China's ancient system of harmonizing form and function, a building must be placed and designed to attract the optimum flow of chi: the energy that animates the earth and all living things. A hybrid discipline, feng shui uses principles from art, geophysics, psychology, and religion to make settings feel comfortable, attractive, and well-suited to the business at hand, whether it be crunching numbers or eating dinner.

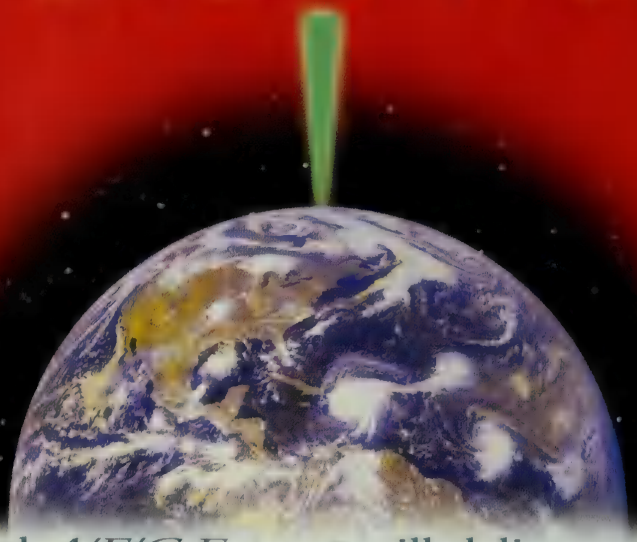
Because good feng shui is said to promote good fortune, its practitioners have long been valued consultants on the design of important Asian commercial buildings. A few years ago, when the Bank of Hong Kong failed shortly after erecting a new headquarters, the Chinese shook their heads; the architects hadn't called in a geomancer, who could have told them their building's chi was disastrous. Now, an increasing number of Western corporate clients, such as Hollywood's Creative Artists Agency, are using feng shui to ensure that offices have propitious entrances and harmonious meeting rooms. In newspapers and shelter magazines, chic decorators and architects advise homeowners that too much chi in a bedroom invites insomnia, while too little in a living room promotes dullness.

Seeking the unseen

Geomancy isn't taught in architecture school, but some very practical people insist that feng shui works. In an increasingly multicultural world, how can a knowledge of different ways of looking at sites and buildings expand the scope of American architecture? Discussions of feng shui lead to a fascinating—if speculative—dimension of environmental-behavioral science that concerns the subtle geophysical properties of special, even sacred, places. Moving water, for example, is often featured in legendary resorts and shrines; many of the great medieval cathedrals were built over springs worshipped by pagans. By the sea or in *(continued on page 214)*

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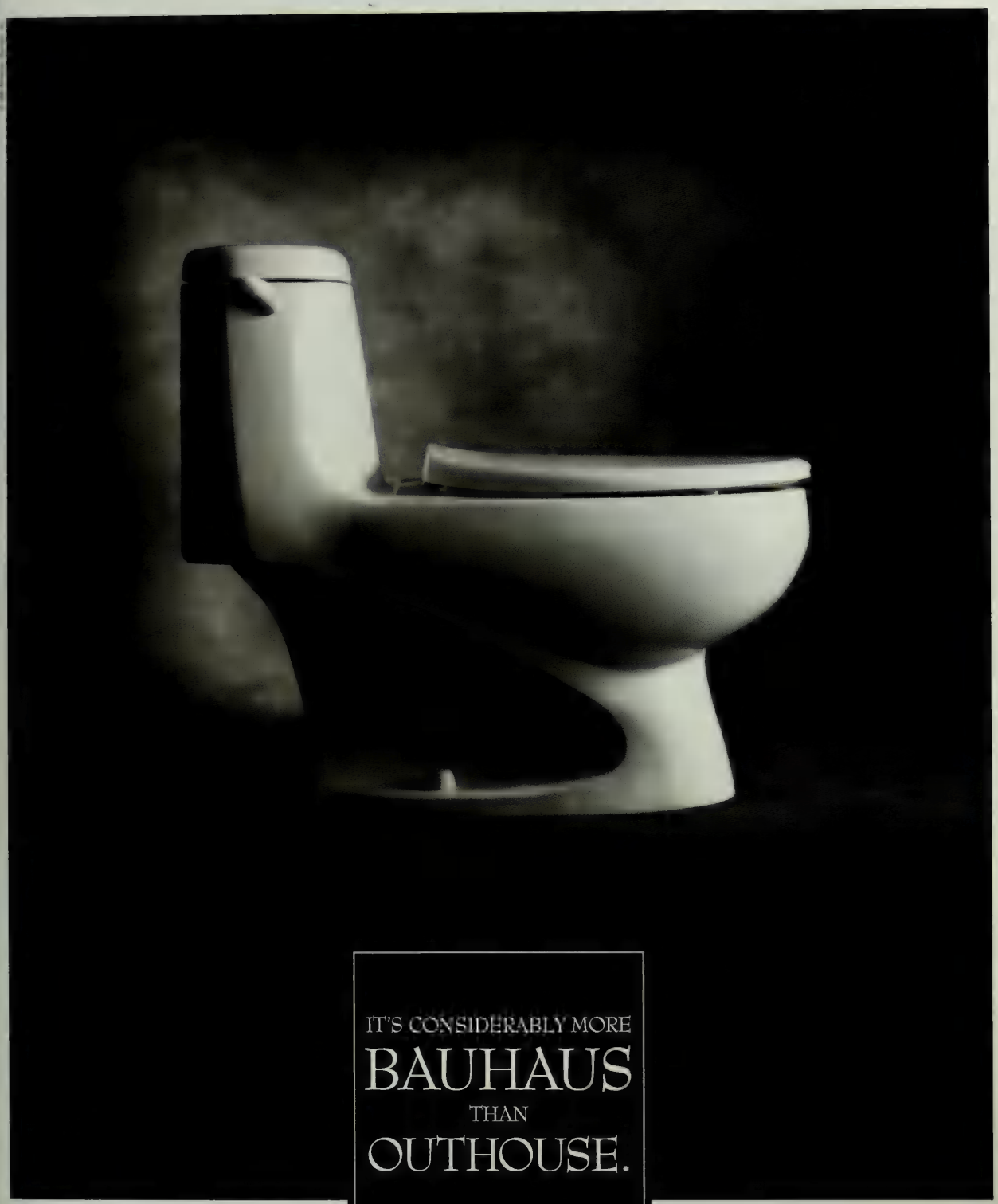
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CIRCLE 48 ON INQUIRY CARD

The Main Concourse (above) in all its glory; the Oyster Bar with its famous Guastavino vaulting (below left); and the station's south facade (opposite).







PROJECT DIARY Beyer Blinder Belle's makeover of GRAND CENTRAL TERMINAL involved careful restoration and critical changes.



Its original architect, Whitney Warren, called Grand Central Terminal "a triumphant portal to New York." John Belle, FAIA, who has spent the last 10 years renovating the Beaux-Arts train station, refers to it as "the Holy Grail of the landmarks preservation movement." These two immodest—but accurate—statements shed light on the very different roles that the building plays on what has always been a very big stage. More than just a fine old building or a place to catch a train, Grand Central is a highly charged symbol: of a cocky city, an expansive metropolitan region, and a grass-roots movement that has altered the real-estate calculus of developers around the nation.

Preserving a landmark of the landmarks movement is a delicate undertaking. Changing anything here raises more than just eyebrows. But the people involved with Grand Central realized that to bring back its old pizzazz would require rethinking the way it functions, adapting old spaces to new needs, and making a few critical changes. The brilliance of Grand Central's original architects, says Belle, can be seen in the way they wove what were essentially three different stations (for incoming long-distance trains, outbound long-distance trains, and commuter rail) into a unified whole. With only suburban trains pulling into Grand Central these days, the challenge facing the renovation architects was to make the building work as a single station while retaining the character and complexity of the original.

by Clifford A. Pearson

1903 The age of the steam engine is ending and planning begins on a new electrified train station for the New York Central and Hudson River Railroad, the company that had opened the large, Second Empire–style Grand Central Depot in 1871 and then expanded it into Grand Central Station in 1898. Change, though, won't come cheaply. Electrifying its rails and building a new double-level station on the site of its existing one will cost the New York Central $80 million (about $2 billion in today's money). To pay for the huge project, the railroad's chief engineer, William J. Wilgus, devises a scheme involving the sale of "air rights." Since an open rail yard won't be needed when steam engines are replaced by electric trains, Wilgus proposes that the area north of the station—today's Park Avenue from 45th to 49th Streets—be covered and that the railroad sell to developers the rights to build above the concealed tracks. The idea would transform an open wound in the city's fabric into a grand boulevard lined with apartment buildings, offices, and hotels.

The railroad puts together a short list of architects for the new facility, which will be called Grand Central Terminal. Among these are McKim, Mead and White and Daniel Burnham. The winning firm, though, is Reed and Stem from St. Paul, Minnesota, which had worked on other projects for the New York Central. Not coincidentally, Charles Reed's sister is married to Wilgus. After some post-competition lobbying, however, the New York firm of Warren and Wetmore submits a design and is asked to work on the project with Reed and Stem. Whitney Warren happens to be a cousin of William Vanderbilt, the chairman of the New York Central.

The planning, design, and construction of Grand Central Terminal take 10 years. Rail service continues uninterrupted throughout the entire process, with the old station being used until it is razed in 1910 and a temporary facility operating through 1912.

1913-47 The new terminal opens on February 2, 1913. More than 150,000 people come to gape at the Main Concourse, which measures 200 by 120 feet, and to admire the

WWW On The Web: *Take a virtual tour of this project at www.archrecord.com.*

Project: *Renovation of Grand Central Terminal, New York City*
Client: *Metropolitan Transportation Authority; Metro-North Railroad*
Architect: *Beyer Blinder Belle Architects & Planners—John Belle, FAIA, partner in charge; John H. Beyer, FAIA, partner, retail design; Douglas McR. McKean, AIA, partner, project manager; James W. Rhodes, FAIA, partner, director of preservation; James Marston Fitch, former chairperson, historic preservation; Timothy Allanbrook, AIA, Norma Barbacci, AIA, William Bickford, Jean Campbell, Denise Duffy, Don Fiorino, Donald Flagg, AIA, David Johnson, Tammy Kahm, Margaret Kittinger, AIA, Charles Kramer, AIA, Maxinne Leighton, Laurence Marner, AIA, Jennifer McManus,* *(credits continue on page 95)*

Beaux-Arts exteriors. As built, the station is more the work of Warren and Wetmore; the only major feature lifted from Reed and Stem's original scheme is the elevated roadway wrapping around the building. Not surprisingly, the forced pairing of the two firms was never amicable, and the architects fight over credit for the project for many years.

The new station serves as a powerful engine driving development in the area. The Biltmore and Commodore Hotels, the Yale Club, the Graybar Building, office towers, and apartment buildings rise up around the station from 1913 to 1927. Grand Central itself is a thriving hub; in 1947, more than 65 million people board or depart trains here.

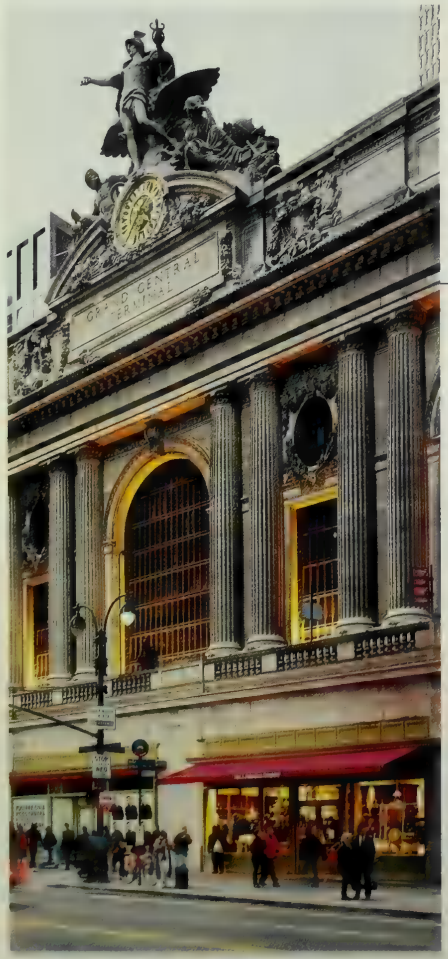
1950-67 Just as the shift from steam to electric trains created the need for Grand Central Terminal, the postwar transformation of America into a nation of highways and automobiles spells trouble for the station. With revenues from train travel slipping and real estate values in Manhattan rising, there is pressure on the New York Central to find new sources of income from its terminal. One solution is to rent parts of the station for nontransit uses; Kodak erects a giant sign, and Westclox a large clock in the Main Concourse. In 1960 the railroad even imagines putting bowling alleys in the Main Waiting Room. Another proposed approach is to tear down part or all of the station to put up a high-rise—a plan that evokes some original plans for the station, which called for a skyscraper behind the main building. In 1954 two different tower proposals are considered. A group of prominent architects, including Philip Johnson and Serge Chermayeff, speaks out against the plans, which are eventually dropped.

In 1958 the railroad approves plans to demolish a small office structure north of the station and build a 59-story tower by Emery Roth, Pietro Belluschi, and Walter Gropius. The Pan Am Building opens in 1963, obscuring Grand Central's remarkable north facade.

1967-78 New York City's newly established Landmarks Preservation Commission designates Grand Central Terminal a landmark in 1967. But the next year, Penn Central, the company formed by the merger of the New York Central and Pennsylvania Railroads, leases the property to a developer who proposes a new tower directly above the station. Designed by Marcel Breuer, the 55-story tower would require the demolition of the Main Waiting Room and part of the Main Concourse and would hide most of the terminal's south facade. After the landmarks commission rejects the proposal, Breuer redesigns the tower so it would preserve the Main Concourse but demolish the south facade. In 1969 the commission rejects this design.

Penn Central files an $8 million lawsuit against the City of New York, challenging the constitutionality of the landmarks law. Three years later the New York State Supreme Court rules in favor of the railroad company, overturning Grand Central's landmark protection. As litigation drags on, opinion makers, including Jacqueline Onassis, rally to protect the old station. Finally, in June 1978 the U.S. Supreme Court upholds New York's landmark law. Grand Central is saved from the wrecking ball.

1978-90 Demolition has been averted, but the terminal now suffers from the consequences of deferred maintenance: leaks in the roof, chipped stonework, rusting steel, stained surfaces, and increasingly run-down and tacky retail tenants. In 1983 Metro-North takes over from Penn Central and begins a program of repairs that includes replacing the leaking roof and skylights. Five years later Metro-North hires Beyer Blinder Belle (BBB), which is also renovating Ellis Island, to prepare a master plan for revitalizing the terminal. Another key consultant is Williams Jackson Ewing, a retail specialist involved in renovating Union Station in Washington, D.C.



Planners hope ■ revitalized Grand Central (red square on site plan opposite) with new retail on 42nd Street (left) and a restored entry on Vanderbilt Avenue (below) will help upgrade the area.

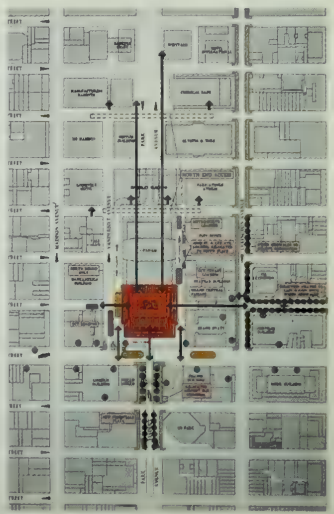




Although retail plays a smaller role at Grand Central than at Union Station, Michael J. Ewing, president of Williams Jackson Ewing, realizes it can be the element that makes the deal work. By upgrading the quality of the retail and doubling the amount of retail space, Ewing figures that rental revenues can be tripled. This expanded income potential can then be used to convince investors to buy bonds that will finance the project. Ewing and John Belle devise a plan predicated on a buffed-and-polished station attracting upscale retailers. Their plan also tries to balance the needs of shopping and history. "Throughout the project, we knew that the retail and the historic structure had to work together," says Ewing today. "We kept reminding ourselves this is a train station."

In April 1990 the master plan is approved by the Metropolitan Transportation Authority (MTA), the parent agency of Metro-North. But without all the funding in place, the program must go forward one piece at a time. Another complicating factor is the fact that the station must remain open during all of the renovation work. "At Ellis we had the island to ourselves," he explains. "But at Grand Central we had half a million people every day walking through our construction site." So for financial and logistical reasons, "we segmented the project," says Belle.

1990-94 The first piece to be tackled is the restoration of the Main Waiting Room, just off 42nd Street. The architects use this phase as "a wonderful laboratory," states Belle. Almost all of the materials found in the building are in this room: Bottocino marble, Tennessee marble, Caen stone, ornamental plasterwork and metalwork, wire glass, and the chandeliers that everyone thought were bronze but turn out to be nickel- and gold-plated. Tasks include cleaning Caen stone (a plasterlike material scored to look like ashlar) by applying a poultice and flexible membrane, then peeling the application off along with embedded dirt; reopening a quarry in Tennessee to get the same marble stones used in the original floor; and dismantling the chandeliers and sending them to Salt Lake City to be cleaned, rewired, and reassembled.



When the Main Waiting Room reopens in 1992, it is used as Exhibit A when the project team makes the argument for renovating the entire station. No longer needed as a waiting room, since long-distance trains don't pull into Grand Central anymore, the room is now a grand space for exhibits and special events. It offers the public an enticing taste of things to come.

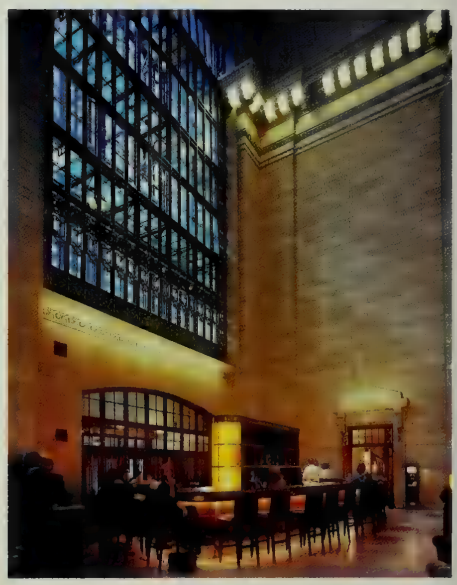
The next element to be restored is the Vanderbilt Avenue taxi stand, on the west side of the station. Not only is this renovated drop-off

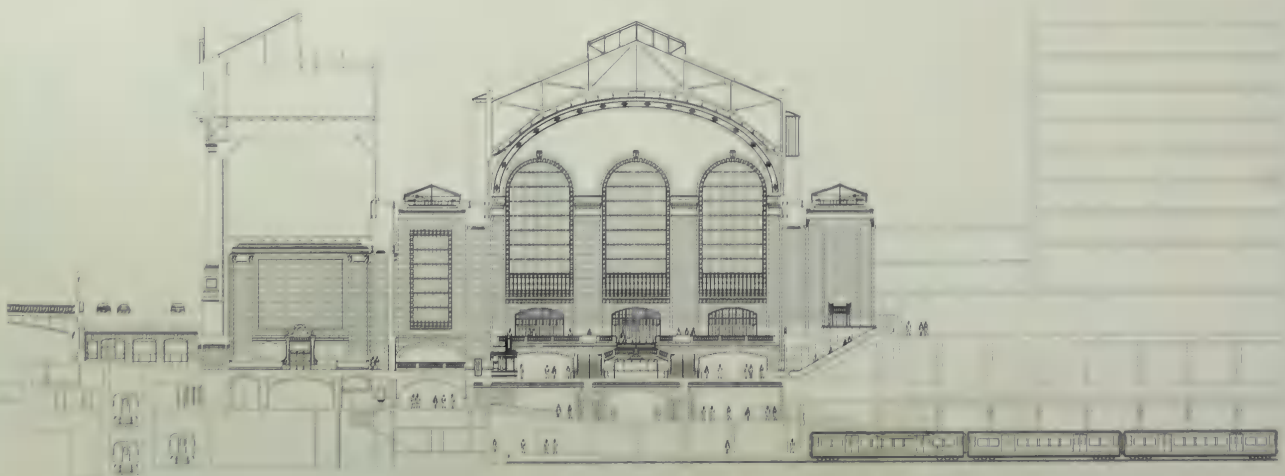

NEW HAVEN LINE DEPARTURES



Virtually every surface in the Main Concourse has been cleaned or restored, including the Tennessee marble on the floor, the Bottocino marble covering the lower portions of the walls, the Caen stone above that, and the ornamental metal of the ticket windows. The sky ceiling rises 120 feet above the Main Concourse, which is 200 by 120 feet.

The terminal's arched windows (left and below) each measure 33 by 60 feet and form a double skin of glass. Glass walkways run between the two transparent skins, connecting offices on either side. A new east stair (left) stands where the Kodak sign used to be and provides access up to restaurants on the balcony level and down to the food court on the lower level. Ornamental metalwork on the ticket booths was recreated from old photographs, and electronic train information displays replaced old flip-letter signs. Nickel- and gold-plated chandeliers (opposite) were cleaned and rewired.





NORTH-SOUTH SECTION


42ND STREET
VANDERBILT HALL



1. *Oyster Bar*
2. *Food court*
3. *Retail*
4. *Main Waiting Room*
5. *Main Concourse*
6. *Graybar Passage*
7. *Market*
8. *Lexington Passage*
9. *42nd Street Passage*
10. *East stair (new)*
11. *Restaurant/bar*
12. *Public space*

To bring life to all three levels, the architects converted the lower train concourse into a food court , turned the balconies into restaurant space, and added a new marketplace east of the Main Concourse.

a welcome convenience, linking the station to the city, it also brings new life to the west balcony onto which it feeds. Soon an upscale café opens on the balcony, proving that this upper level can support food-service establishments.

In 1994 the MTA signs a 110-year lease on Grand Central from the successor company to the bankrupt Penn Central. With long-term control of the building secured, the MTA asks the private sector to invest in a comprehensive revitalization of the station. Bonds worth $84 million are sold, supplemented by $109 million from the MTA's capital budget and $4 million from the federal government. The MTA then hires GCT Venture Inc., a partnership of Williams Jackson Ewing and developers LaSalle Partners, to implement the overhaul of Grand Central Terminal.

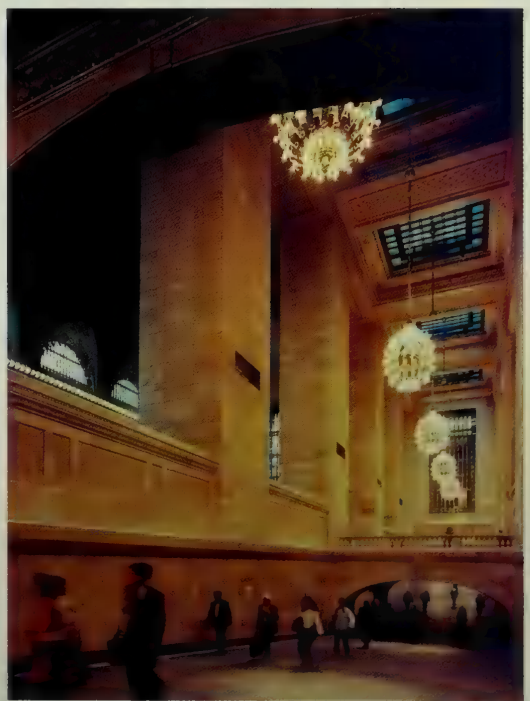
1994-98 Cleaning up the old fabric, modernizing mechanical systems, and improving transit functions of the terminal are only part of the grand plan. The overarching goal is to transform Grand Central into a destination for everyone in New York, not just commuters. "The idea was to restore Grand Central to its former glory," says E. Virgil Conway, chairman of the MTA. "For many years it hadn't been central to the functioning of New York, nor had it been grand."

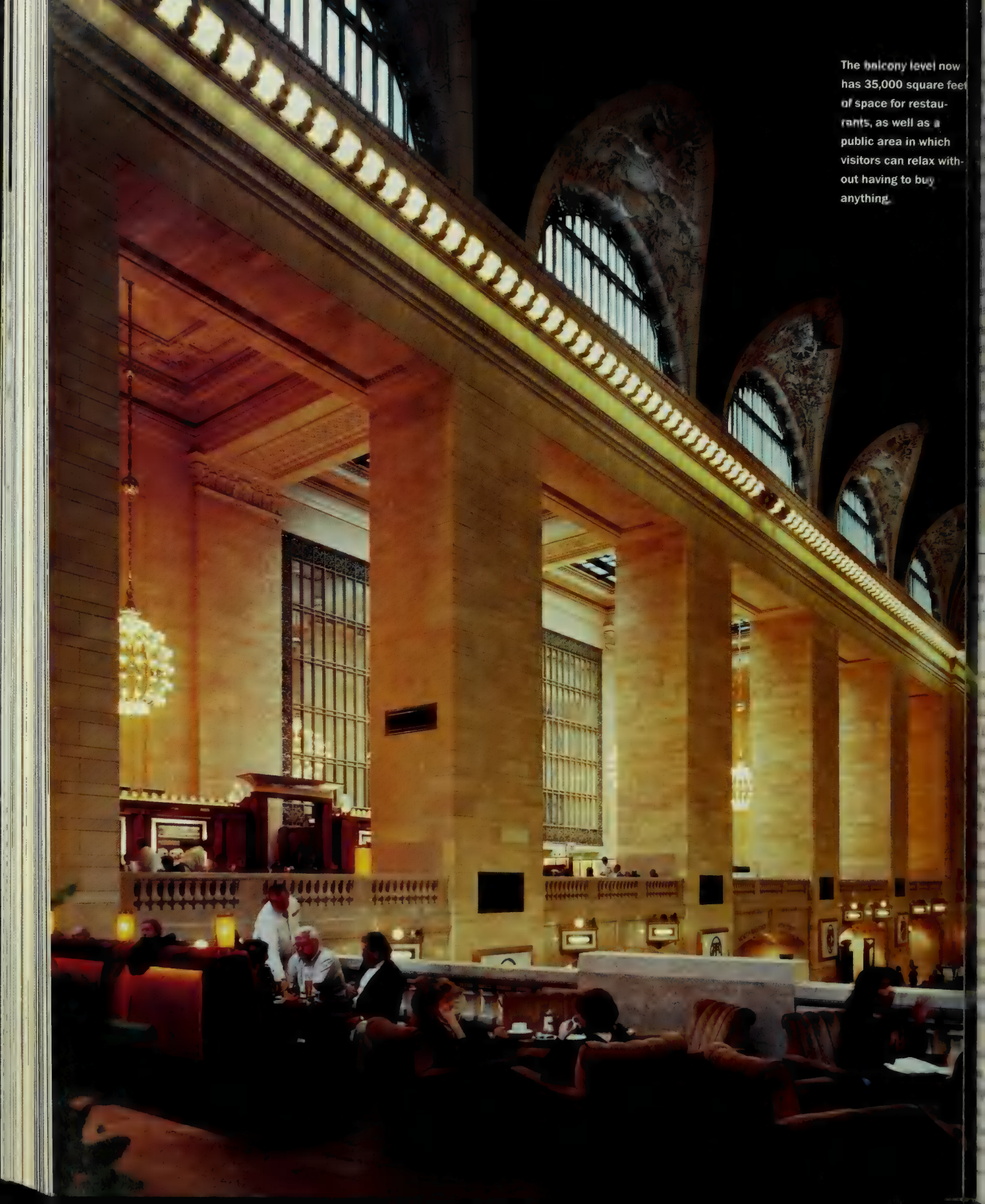
The most obvious changes are in the Main Concourse, one of the great rooms in the country and the people-pumping heart of Grand Central. The giant Kodak sign is removed, opening up the east side of the concourse and making way for a critical new element: a grand stair that will echo the design and placement of the existing west stair. In fact, early drawings by Warren and Wetmore show twin staircases facing each other at either end of the Main Concourse. The east stair was never built, says Belle, because its main function was to bring people up one level to the elevator lobby of a high-rise that was to stand behind the terminal. When a collapse in the real estate market killed the tower, the east stair died, too, leaving an asymmetrical axis in this otherwise perfectly Beaux-Arts space.





Removing offices added in 1927 over the ramps leading from the Main Concourse to the Lower Concourse has turned a tunnel-like corridor (left) back into a dramatic space (right). The architects changed the bridge over the ramps (above), designing a new balustrade that offers views down. The bridge originally had an eight-foot-high wall that shielded long-distance travelers from seeing commuters below.





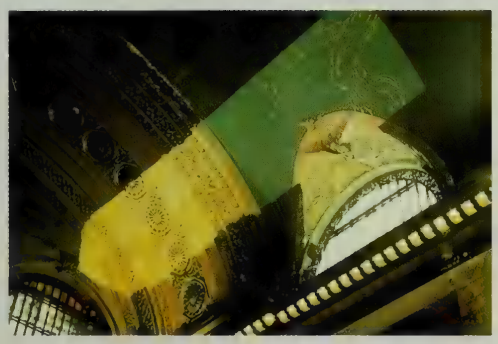
The balcony level now has 35,000 square feet of space for restaurants, as well as a public area in which visitors can relax without having to buy anything.

SKY CEILING

The project team's decision to clean and restore the sky mural done in 1945 rather than the one painted by Paul Helleu in 1913 provoked some controversy among preservationists. But Beyer Blinder Belle determined that the original tempera mural had been damaged beyond repair by decades of water leakage and by the installation of the new painting, which was glued in panels directly onto the water-damaged old. The presence of asbestos in the 1945 work also helped convince the architects that it would be safer to keep the panels in place than to remove them.

The most difficult part of the job was getting work crews up to the ceiling. Scaffolding the entire ceiling would have been very expensive and would have interfered with travelers using the Main Concourse below, says Steven Sommer, senior vice president of Lehrer McGovern Bovis, the general contractor for the Grand Central renovation. So Universal Building Supply, the scaffolding contractor, devised a free-standing aluminum-truss scaffolding that moved along the floor on rollers and covered just a small section at a time. Cleaning the oil-based painting was relatively easy, done with a diammonium citrate gel that is very stable and requires little rubbing. Small portions of the mural required repainting and new gold leaf. Old 40-watt incandescent "stars" were replaced with a fiber-optic light system. Above the ceiling, contractors installed new ventilation equipment. Even before funding for the job was in place, a patch of the ceiling was cleaned (right) to get the public excited. *C.A.P.*





Wanting "to complete Whitney Warren's plans for the room," BBB designs a new east stair made of the same Bottocino marble as its sister to the west. Though Beaux-Arts in spirit, the new stair has simpler lines than its older sibling to show it is not original to the building.

The most eye-catching change in the Main Concourse is the restoration of the famous Sky Ceiling. The aquamarine barrel vault, with its procession of goldleaf constellations punctuated by 60 blinking "stars," has accumulated decades of dirt, grime, and diesel exhaust and become a dull, almost illegible ghost of its former self. What the public has seen for the last five decades, though, is not the original mural, but a second version executed in 1945 on panels glued to the 1913 work, to hide water damage from a leaking roof. BBB has to decide whether to clean and touch up the less sophisticated painting from the 1940s or try to restore the seriously damaged original mural. According to Douglas McKean, the project director for BBB, the older painting is beyond repair. The 1945 version, however, is relatively easy to clean, though some goldleafing and repainting is needed. As a final touch, a new fiber-optic system replaces the old incandescent stars in the constellations.

A critical part of BBB's plan is to open up the station by removing previous alterations that impede the original flow—most notably the expanded ticket offices built in 1927 over the ramps leading to the lower concourse. Restoring the space above the ramps, the architects turn dark tunnels into architectural theater and focus attention on the original building's spectacular way of weaving together different levels of activity.

Another important element in reinventing Grand Central is revitalizing underused spaces such as the balconies and the Lower Concourse. With prime views of the Main Concourse, the balconies are leased to high-end restaurants—Michael Jordan's–The Steakhouse, Cipriani Dolce, and Metrazur among them—bringing new panache to a station that has catered mostly to the hot-dog and pretzel needs of its users. The Lower Concourse, which has been used only during peak hours since the end of long-distance rail service, is redesigned by David Rockwell & Associates as a food court that aims to attract customers all day long.

Retail areas in the Graybar and Lexington Passages, which run parallel to each other from the Main Concourse to Lexington Avenue, are also renovated. In space that had once been occupied by a newsreel cinema and a loading dock, BBB designs a new marketplace that will feature fresh produce, seafood, and local goods. The east end of this structure is a new granite and limestone facade on Lexington Avenue topped by one of the cast-iron eagles that had sat atop the 1871 Grand Central Depot.

Some of the new restaurants and retail elements won't be finished until this spring, so it is still unclear whether the $200 million makeover has indeed created a place that can stay active between rush hours and into the evening. And only time will tell if the repolished Beaux-Arts jewel can be a civic engine driving improvements in its neighborhood. But like the new fiber-optic lights in the cleaned-up Sky Ceiling, Grand Central's stars seem to be aligned for a bright future. ■

Credits (continued)

Robert McMillan, AIA, Richard Miller, Christine Muller, Elizabeth Newman, Mark Nusbaum, AIA, Elena Palau, Jennie Pocock, Frank Prial, AIA, Deborah Rau, Donald Recchia, Magali Regis, Roni Ruso, Ranabir Sengupta, Ken Shook, Rocio Vasconez, Michael Wetstone, AIA, Kip Wicke, AIA, Nolan Zail

Associated Architects: *Harry Weese Associates (master plan, restoration); Sen Architects, Rockwell Group, Federman Design + Construction Consultants (retail development)*

Contractors: *George Campbell Associates (Waiting Room renovation); Lehrer McGovern Bovis (retail, Main Concourse, utilities)*

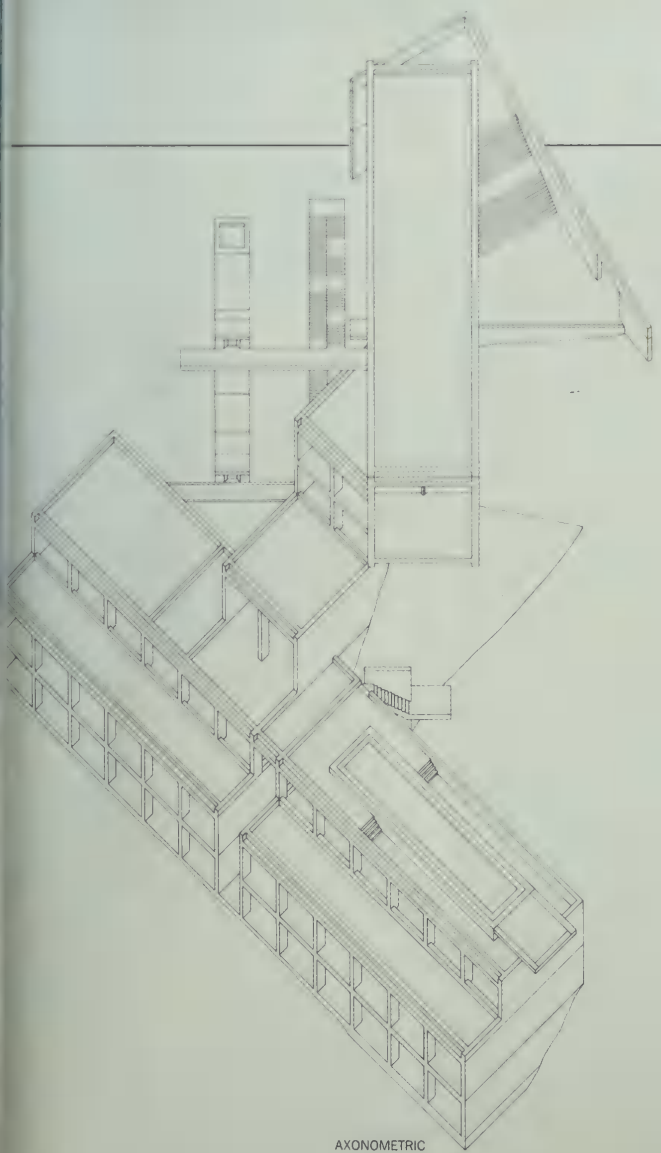
Sources

Steel windows: *Airflex, Coordinated Metals Inc., W & W Glass*
Entrance glazing: *Genetech, Tajima Corp., W & W Glass*
Acoustical ceiling: *Armstrong*
Floor and wall tiles: *Daltile*
Lighting: *LK Comstock & Co.*
Resilient flooring: *Azrock Marmoleum*



At the edge of a steep hillside, Ando has stacked boxlike forms, rotated to fit into the hillside (axonometric, opposite). From the top-floor entrance, a single window punched into the side wall gives a clipped view of the coastline and the free-standing elevator shaft (right).

Tadao Ando's TOTO SEMINAR HOUSE is a corporate retreat that is a world apart, a building that beckons to earth and sky.



AXONOMETRIC

by James S. Russell, AIA

A solitary tower, minimally penetrated monumental walls, and gridlike openings reveal little about what goes on inside the ash gray concrete structure on a steep hillside in southern Japan. To the informed eye, however, one thing is clear: this is a work of Tadao Ando. Still, it could be a private house, a museum, or a shopping galleria—Ando's palette has not varied greatly by type during his 30 years of practice. The building is in fact a 34,000-square-foot retreat house for TOTO, a plumbing-fixture manufacturer. Though the company holds conferences and training seminars here, the retreat house primarily offers hard-working employees a place to take their families for a weekend's rest and recreation.

Neither a woodsy getaway nor a pampering resort, Ando's purposefully austere design doesn't promise conventional R&R. The architect has long asserted that the compromises of a convenience-oriented and commodified daily life deprive us of spiritual richness. The company hired him to make a place that defied expectations, that was serene, contemplative—a place apart. The client trusted its architect so much it even let him select a site. Ando found one that was freighted with meaning on the eastern shore of Awaji Island, near Kobe. Perched close to the brow of a lushly planted hillside, the site offers a panoramic view of the island's edge and the ocean, some 300 feet below. Ando found in the upthrust land an expression of Japan's founding, which ancient mythology attributes to this place. It was also the epicenter of the 1995 earthquake that did immense damage to Kobe. The architect thought of the building as a kind of landmark commemorating this tragic event.

Ando's design shifts the orientation of the building across its seven levels to orchestrate an itinerary that opens distinct vistas and carefully framed views. ("I have tried to create works that betray . . . expectations," Ando told an interviewer in *Japan Architect.*) Guests enter the building on the topmost level of a two-story-high concrete tube. A reception area spills down a wide stair to a lounge and outdoor terrace that opens to a huge vista—split by a pier of concrete—of ocean and distant

Project: *TOTO Seminar House, Tsuna-gun, Hyogo, Japan*
Owner: *TOTO Ltd.*
Architect: *Tadao Ando Architect & Associates—Tadao Ando, principal; Takashi Muto, project architect*
Engineers: *Ascoral Engineering Associates (structural); Setsubi-Giken (electrical)*
General Contractor: *JV of Takenaka Corporation and Saeki Kensetsu Kogyo*

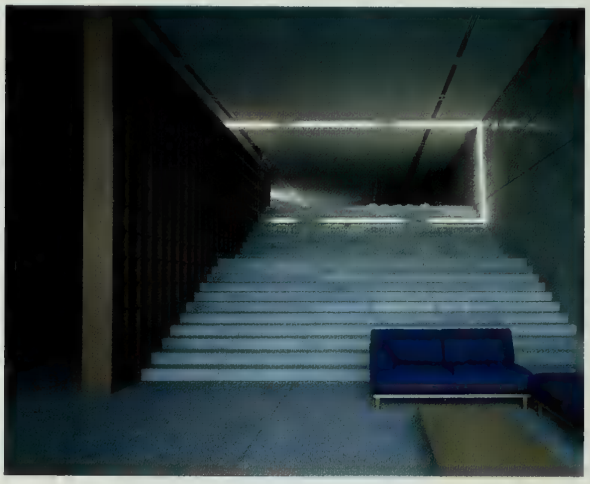




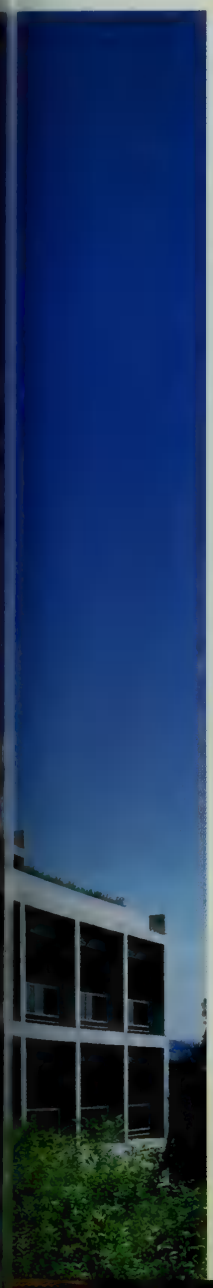
A narrow road leads to the top-floor entrance of the TOTO Seminar house (aerial view, left). From the top level, the visitor moves through the building by crossing an outdoor bridge (above) and taking an elevator down. In this way, the building exposes the visitor to wind, sun, and the vastness of the ocean's sun-dappled surface. The axis of the pool (opposite) carries the eye to Osaka in the distance.



Though Ando oriented some elements of the building to shape views (plans opposite), the orientation also fits the buildings into the tumbled slope of the hillside (section opposite). Light seeps into the single-loaded corridor behind the guest rooms (right). On the lowest levels, the rooms open onto ocean-facing terraces (below), though a scrim of trees makes a protective foreground. The architecture of the guest-room levels—linear segments set perpendicular to the hillside's fall line—is akin to that of Ando's most famous housing, the Rokko complex above Kobe.



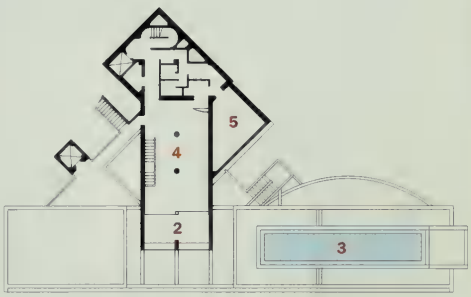






EAST-WEST SECTION

EIGHTH FLOOR



FOURTH FLOOR



SECOND FLOOR

N

rolling hills. By screening the foreground coastline, Ando paints a view of almost pure abstraction. The ocean seems no longer a uniform lens of blue or steel gray, but comes alive with wind rippling the surface, the limpid path of the sun, or the restless shadows of clouds.

Under the cantilevered entry pavilion, Ando has rotated long, terracelike structures a little more than 45 degrees to the south, stretching meeting rooms, a dining room, and guest rooms southwest to northeast on a flat part of the site. An elevator shaft unites the crisscrossing geometries, rising from within the three single-loaded lower floors of guest rooms as a freestanding tower. Ando saves the vertigo-inducing vistas for public areas, swaddling domestic spaces with the comforting enclosure of greenery. At the guest room levels, the plunging hillside and the ocean vistas are obscured by trees edging a small shrub-studded lawn.

The guest rooms reprise the vertical itinerary of the public areas: all are duplexes entered from the top. Stairs lead down to a double-height living area. Some rooms are arranged in traditional tatami style, with pillows and low tables, rather than Western-style chairs. Bathrooms are elegantly appointed, and soaking in a TOTO tub affords an outdoor view.

Just as the site was chosen for its historical associations as well as its spectacle, the orientation of views celebrates more than an attractive setting. The axis of the pool, which cantilevers northeastward from a roof terrace, points the eye to Osaka, the vast metropolis from which many guests will have come. The vista in the reception lounge includes Kansai Airport across many miles of ocean, symbolizing, says Ando, "arrival and departure, a sense of the center of information transfer, a sense of the most important thing that connects the region to the rest of the world."

1. *Lobby*
2. *Terrace*
3. *Pool*
4. *Dining*
5. *Kitchen*
6. *Guest rooms*

Revisiting earlier themes

Ando has deployed his customary materials and details, and the way TOTO engages its site is as unique and complicated as much of his earlier work is. The Water Temple, only a few miles north of TOTO, engages in a dialogue with the landscape. It's a lily pad–studded basin presented as if in offering to the hillside above. Descending the stair into the temple is like dropping through the surface of the water. In other projects Ando offers something akin to an argument, an argument that is civilized but that the architect seems determined to win. The exterior of the Chikatsu-Asuka Historical Museum (RECORD, November 1995, page 72), for example, is experienced by visitors as a monumental stair cascade, an architectural extension of the topography. On its west and south faces, however, it's a massive wedge pushing its way out of the earth.

If the TOTO project is similarly assertive, even citadel-like, it is because Ando is not only recognizing the topography and views, he's helping the guest experience the place as the edge where earth meets sky.

The power of Ando's forms and the sensuousness of the fabric he uses to make buildings can distract the visitor from the architect's real intention: to make sensation palpable. Rather than simply framing views, Ando is "inviting nature in," as he puts it, placing visitors where they will feel the breeze, catch the sun, and sense the sky not as a visual backdrop but as an atmosphere that surrounds and touches.

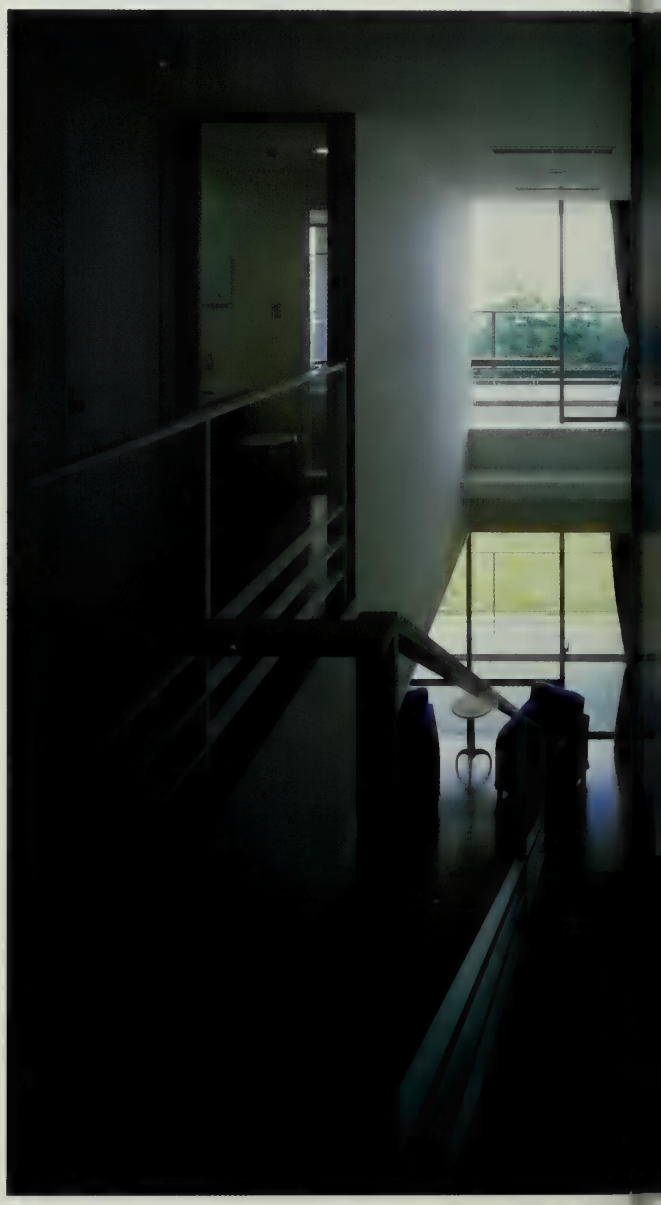
Ando's guiding proportional system is the tatami, which, he explains, "comes from the scale of the human body of the Japanese people." Measurements derived from the tatami form the datum for column spacing, window divisions, and railing heights. You don't have to know how these proportions add up to feel them, which is why Ando can keep making something new out of apparently similar concrete, metal, and glass details.

Contradictory architect, and architecture

Ando is often portrayed in reverential monographs as something akin to a helmet-haired monk. But he operates in the adrenaline jangle of modern, urban Japan. Speaking from his office, not far from the grimy shadows of a railroad viaduct at the bustling center of Osaka, he belies any Zen-like preconceptions. Gravelly voiced, quick to smile, but impatient and pugnacious, he reminds the visitor of the amateur fighter he once was.

If it is hard to reconcile the man with the work, the work does not neatly resolve itself either. It is monumental, but not bombastic. It is calm, but too willful, too striven-for to be truly tranquil or deferential in the Zen tradition. It is indisputably urban, but it walls off Japan's often cacophonous manmade surroundings.

Ando describes an "oscillation" in his design process, a perpetual consideration of opposites. "Can the delicacy of Japanese architecture be carried in its original character into an architecture infused with high intensity?" he has asked. "Conversely, can powerfully constructed space be brought to delicacy without its weakening?" The work of Tadao Ando arguably succeeds more in the intensity than in the delicacy. On the other hand, the architecture of the TOTO Seminar House opens one's eyes in a unique way to the wealth of natural experience—it helps you see the hawk idly picking its way along the hilly site's thermal updrafts. This is perhaps Ando's genius. ■

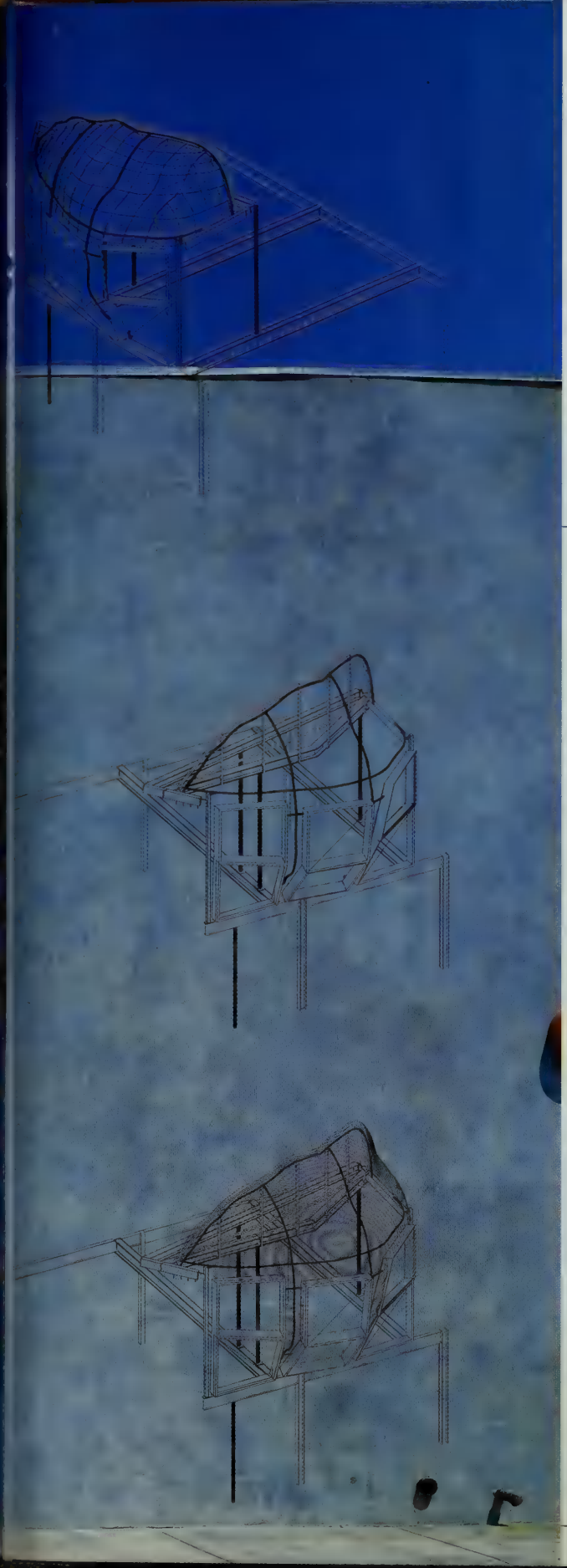




On entering the TOTO Seminar House, the visitor descends a wide stair to a lounge opening out to a view of seemingly endless ocean (above). Duplex guest rooms are also entered from above (opposite). The bathroom on the upper level is placed on the window wall. Some of the lower-level living areas are fitted out in Western style; others are set up as tatami rooms.

A shaggy protrusion of glass and concrete block energetically pops out of the smoothly plastered wall. Computer modeling (drawings opposite, top to bottom) shows the plywood mold, the wire pipe frame, and the projected surface form.





CRITICISM Eric Owen Moss comes up with a wild thing for TRIVIDA in Culver City.

by Suzanne Stephens

It's not a pretty sight. The rippling bulge of concrete block and steel-framed windows bursting out of a Culver City, California, warehouse make it seem that Eric Owen Moss has seen *Alien* too many times. A question pops into the onlooker's mind: "Why do this?" Moss's rationale is compelling, although the experiment raises questions that are larger than the thing itself.

Moss's aim in designing the bulge was to "break out of the box" and, using conventional materials, arrive at a spatial form that was "fluid" and "hypothetically kinetic." The intervention provides an idiosyncratic signature for both Moss and the building's developers, particularly since it is near other projects they have worked on. Moss's combination of architectural panache and functional spec office space has contributed to a significant overhaul of this grotty industrial area of Culver City.

Located at 3524 Hayden Avenue, the warehouse belongs to Frederick and Laurie Smith, Moss's clients for a number of daring projects in recent years, including the Samitaur Building (RECORD, February 1997, page 52). In renovating the building, Moss deliberately kept the 7,000-square-foot, blue-gray-plastered wood-frame structure a neutral background. Out of the second-floor street wall erupts the ogle-eyed bulge of concrete block and glass, containing within its bowed contours a conference room and an office for Alex Jacobson, the president and CEO of Trivida, a computer software company that leased the space from the Smiths.

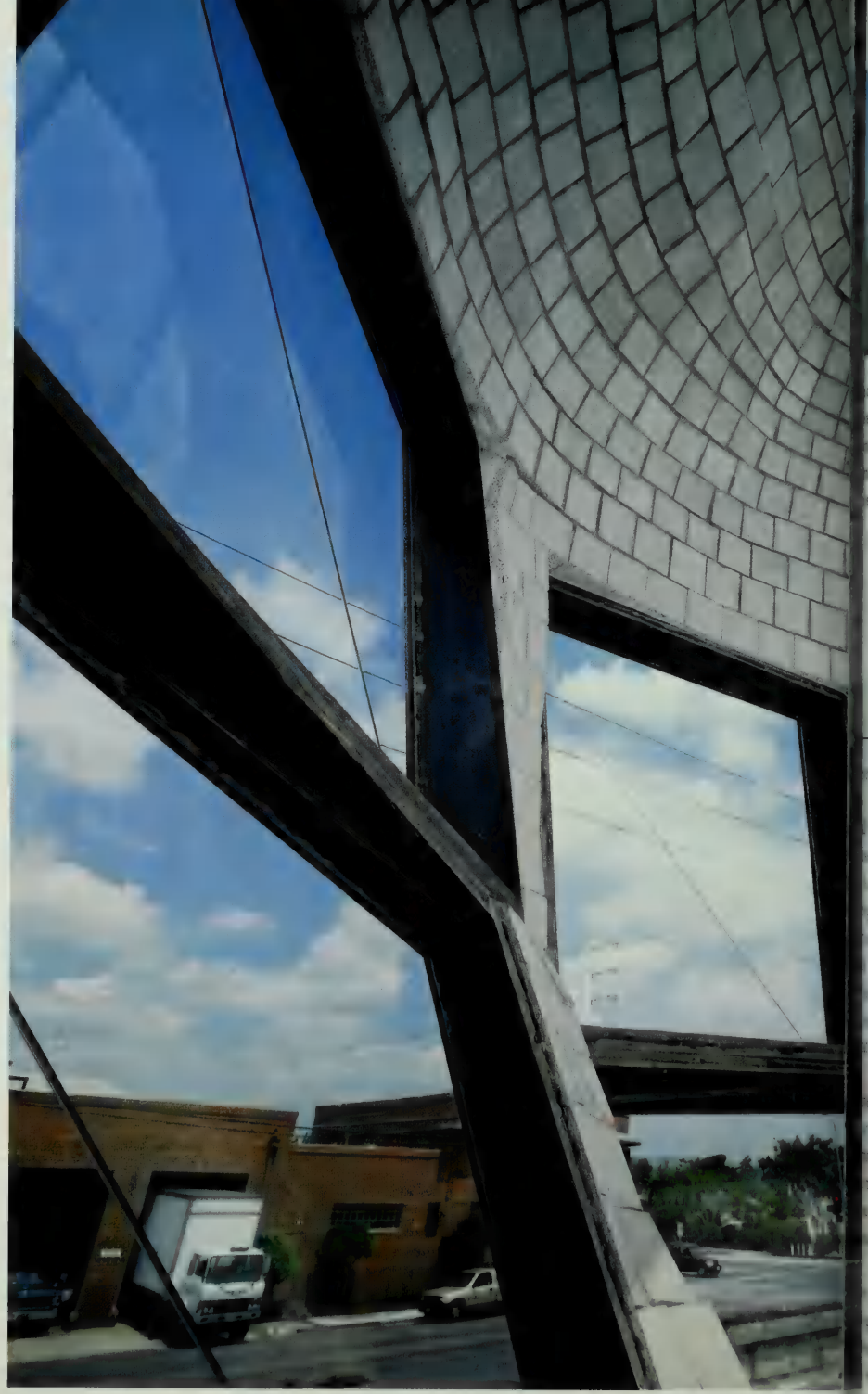


Inside the protrusion, occupants find themselves within a vaulted, dramatically shaped and angled space, partly glazed and partly concrete block, with additional light admitted through

Project: *Trivida, Culver City, California*
Architect: *Eric Owen Moss Architects—Eric Owen Moss, principal; Jay Vanos, project architect; Scott Nakao, design team leader; Paul Groh, Dolan Dagget, Francisco Delgado, Don Dimster, John Bencher, Stewart MacGruder, Justin Liu, Sandra Gallego, Nicole Hatje, designers*
General Contractor: *Samitaur Constructs—Peter Brown and Tim Brown*
Engineers: *Kurily, Szymanski, and Tchirkow (structural); Fruchtman and Associates (mechanical); Silver, Roth and Associates (electrical)*
Consultants: *Dennis Kuga and Laurie Smith (landscape)*

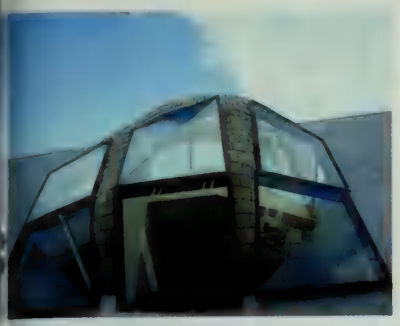


1. *CEO office*
2. *Conference room*
3. *Offices*
4. *Records*



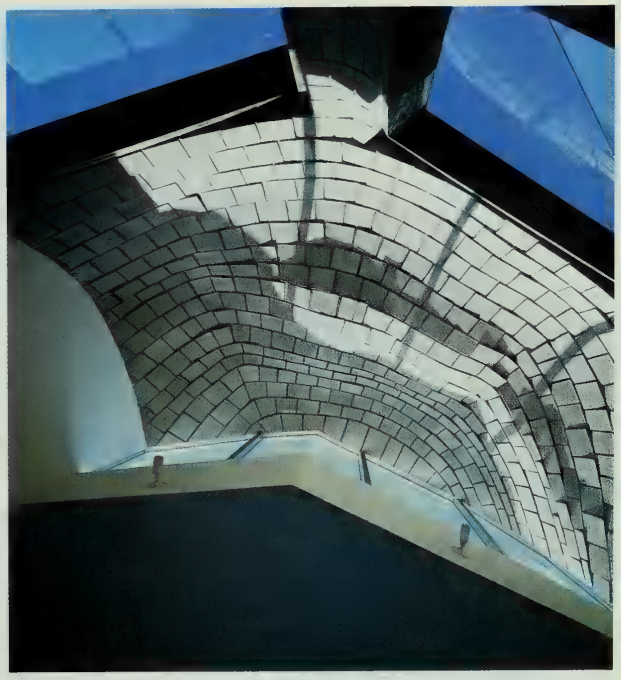


A "battle of the bulge" as Moss calls it, resulted in a dramatic interior space for the president and CEO's office and for the conference room on the second floor. The height of the space, amply lit through both the protruding windows and a rear clerestory, and the undulating curves of the concrete block dramatically punch up the clean and crisp offices of the two-story building.



op of the bulge: a
lerestory (detail right)
dmits more natural
ight onto the rippling
alls of the interior.

SECTION



lerestories installed between the top of the curve and the flat roof.

In creating this muscular eruption, in which the concrete block wall's identity as a planar, crisply regulated form is severely assaulted, Moss was inspired by a 1929 essay by Le Corbusier. The essay, "In Defense of Architecture," was written to rebut criticism that Le Corbusier was being seduced by formal qualities rather than inspired by the functionalism of the Neue Sachlichkeit (New Objectivity). Le Corbusier maintained that "aesthetics are a fundamental human function" and concluded, "The *sachlich* (object) I do not even discuss, conceding it to be evident, primary, inevitable, like the bricks with which one builds a wall. But what wall?"

Le Corbusier's question became all-important to Moss, who named his bulge "What Wall?" He took about 1,000 concrete blocks ("very sachlich"), each eight by eight by eight inches, and custom-trimmed them to fit into a curve. Since the hollow blocks could not be cut too much, they limited the overall contour of the bulge. And one thing about concrete block construction always remains constant, adds Jay Vanos, the project architect: "the horizontal course is mandatory."

Moss's architectural team made a wood model, then used computer-generated construction drawings to create a steel armature. Next, an egg crate–like plywood scaffold was placed inside the steel frame to provide shoring and formwork for the blocks. (The plywood was later cut out with a chainsaw.) Finally, the mason, using the model, shaped and attached the concrete blocks, knitting them together with rebars and mortar. The windows were adjusted to this radical deformation: though they are basically square with steel frames, the clear glass has been creased and folded where necessary.

Making a curvilinear wall using flat-sided modular blocks came at a price, however. "Having the freedom to make wild things is an issue," Moss acknowledges. "The search for freedom and openness turns out to have its own constraints." Money was not the main problem, for if the small, 25-by-25-foot area was expensive (Moss won't divulge the cost), the rest of the building was low-budget. But the entire process, including the construction and bidding, was extremely complicated. Some 52 working drawings were required for the windows, plus 32 for the steel pipe structure. Nevertheless, Moss feels his large-scale projects in Düsseldorf, on Ibiza, and in central Los Angeles will benefit from such research. (Though one is tempted to point out the obvious lesson from all those drawings: too much method might be required for this madness.)

The issue of aesthetics is murkier. Le Corbusier had defended the use of the Golden Section and geometric forms against obsessive functionalism. Moss's aesthetic goal was different from both of these modernist positions: with this battered, squashed, and fragmented artifact he sought to "find a way to construct tension, not just to find a way out of tension." His architectural expressiveness ends up challenging not only what a concrete block wants to be, but what we want to see.

For some, such as Trivida's Alex Jacobson, the result is a success: "I love it," he exclaims. "The interior has such a spatial impact with the light, the height, and the sculptural concrete block wall. It's like a cathedral." For others, such as this observer, the theoretical impetus behind the bulge is more seductive than the physical result. But there are mitigating factors. The smooth, planar, renovated warehouse offers a mute foil to this eccentric event: we notice more of one because of the other. The experiment takes place off the beaten path in this peculiarly urban, laboratory-like part of Culver City, where such efforts are more and more at home. And the thing may be weird, but it has vitality.

This is not to say that the question "Why do this?" has been answered. But Moss's own investigation into torturing concrete block should not be shrugged off: there is virtue in the quest for an architecture that does not accept convention. If Moss's exploration of anti-logic does not lead anywhere specific, or turns out to be simply gratuitous, at least he is keeping the questioning open. ■

Sources

Masonry: *Angeles Block/L & J Flores Construction*

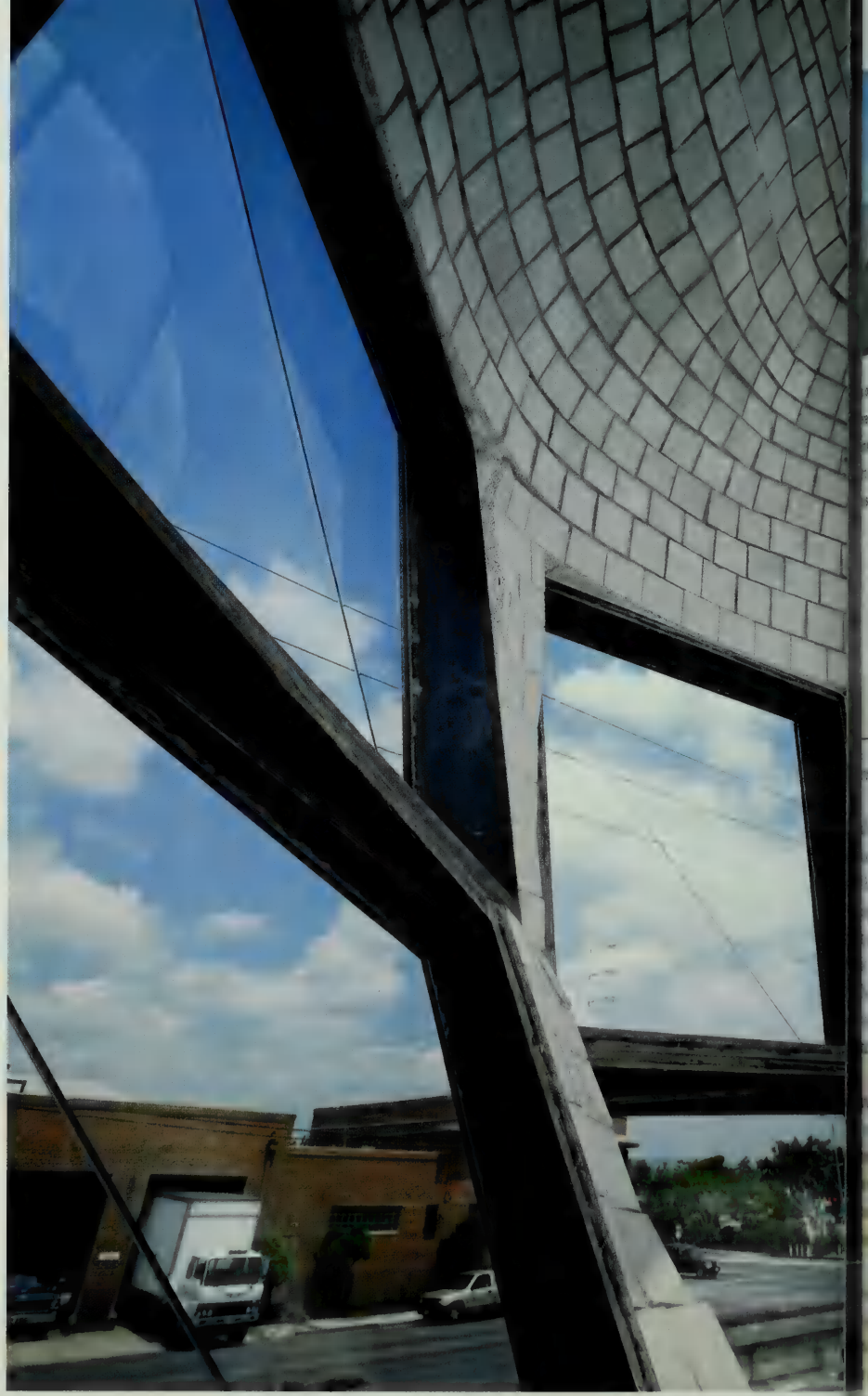
Steel windows: *Rami Designs*

Glazing: *Regal Glass*

Locksets: *Schlage*



1. *CEO office*
2. *Conference room*
3. *Offices*
4. *Records*



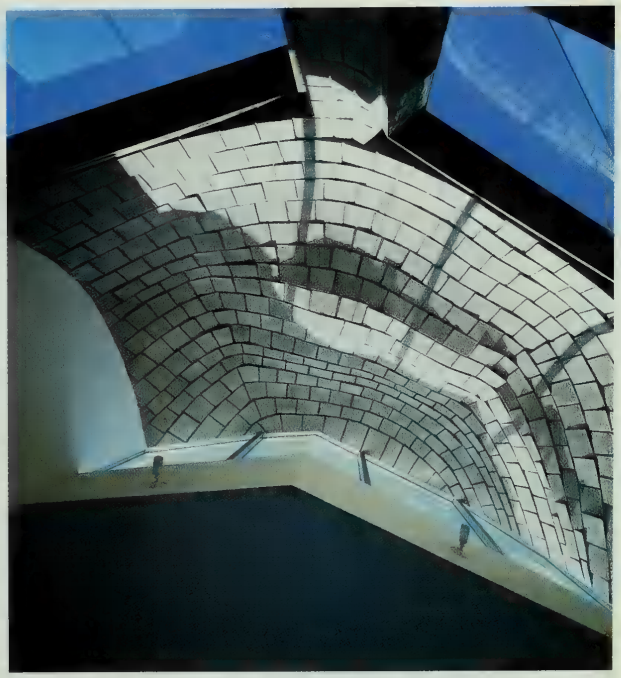


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Top of the bulge: a clerestory (detail right) admits more natural light onto the rippling walls of the interior.

SECTION



clerestories installed between the top of the curve and the flat roof.

In creating this muscular eruption, in which the concrete block wall's identity as a planar, crisply regulated form is severely assaulted, Moss was inspired by a 1929 essay by Le Corbusier. The essay, "In Defense of Architecture," was written to rebut criticism that Le Corbusier was being seduced by formal qualities rather than inspired by the functionalism of the Neue Sachlichkeit (New Objectivity). Le Corbusier maintained that "aesthetics are a fundamental human function" and concluded, "The *sachlich* (object) I do not even discuss, conceding it to be evident, primary, inevitable, like the bricks with which one builds a wall. But what wall?"

Le Corbusier's question became all-important to Moss, who named his bulge "What Wall?" He took about 1,000 concrete blocks ("very sachlich"), each eight by eight by eight inches, and custom-trimmed them to fit into a curve. Since the hollow blocks could not be cut too much, they limited the overall contour of the bulge. And one thing about concrete block construction always remains constant, adds Jay Vanos, the project architect: "the horizontal course is mandatory."

Moss's architectural team made a wood model, then used computer-generated construction drawings to create a steel armature. Next, an egg crate–like plywood scaffold was placed inside the steel frame to provide shoring and formwork for the blocks. (The plywood was later cut out with a chainsaw.) Finally, the mason, using the model, shaped and attached the concrete blocks, knitting them together with rebars and mortar. The windows were adjusted to this radical deformation: though they are basically square with steel frames, the clear glass has been creased and folded where necessary.

Making a curvilinear wall using flat-sided modular blocks came at a price, however. "Having the freedom to make wild things is an issue," Moss acknowledges. "The search for freedom and openness turns out to have its own constraints." Money was not the main problem, for if the small, 25-by-25-foot area was expensive (Moss won't divulge the cost), the rest of the building was low-budget. But the entire process, including the construction and bidding, was extremely complicated. Some 52 working drawings were required for the windows, plus 32 for the steel pipe structure. Nevertheless, Moss feels his large-scale projects in Düsseldorf, on Ibiza, and in central Los Angeles will benefit from such research. (Though one is tempted to point out the obvious lesson from all those drawings: too much method might be required for this madness.)

The issue of aesthetics is murkier. Le Corbusier had defended the use of the Golden Section and geometric forms against obsessive functionalism. Moss's aesthetic goal was different from both of these modernist positions: with this battered, squashed, and fragmented artifact he sought to "find a way to construct tension, not just to find a way out of tension." His architectural expressiveness ends up challenging not only what a concrete block wants to be, but what we want to see.

For some, such as Trivida's Alex Jacobson, the result is a success: "I love it," he exclaims. "The interior has such a spatial impact with the light, the height, and the sculptural concrete block wall. It's like a cathedral." For others, such as this observer, the theoretical impetus behind the bulge is more seductive than the physical result. But there are mitigating factors. The smooth, planar, renovated warehouse offers a mute foil to this eccentric event: we notice more of one because of the other. The experiment takes place off the beaten path in this peculiarly urban, laboratory-like part of Culver City, where such efforts are more and more at home. And the thing may be weird, but it has vitality.

This is not to say that the question "Why do this?" has been answered. But Moss's own investigation into torturing concrete block should not be shrugged off: there is virtue in the quest for an architecture that does not accept convention. If Moss's exploration of anti-logic does not lead anywhere specific, or turns out to be simply gratuitous, at least he is keeping the questioning open. ■

Sources

Masonry: *Angeles Block/L & J Flores Construction*

Steel windows: *Rami Designs*

Glazing: *Regal Glass*

Locksets: *Schlage*

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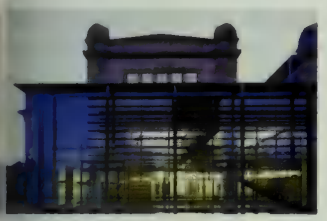
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ADAPTIVE REUSE

The Past Revisited

FOUR INDUSTRIAL BUILDINGS ARE INVENTIVELY TRANSFORMED, WHILE THE FATE OF MANY '50S AND '60S STRUCTURES HANGS IN THE BALANCE.

by Tracie Rozhon



1

Landau, Germany

A 19th-century slaughterhouse in southwest Germany is reborn as a library that eloquently integrates traditional with Modernist architecture.



2

Los Angeles

Rising on the foundations of a 1930s warehouse, a new restaurant combines industrial timber trusses with soaring, dynamic forms.



3

Hamden, Connecticut

A monumental concrete water tank gains a new life as a stuccoed hilltop villa, home to the architect who transformed it.



4

Eindhoven, The Netherlands

A desolate lightbulb factory becomes a vital cultural complex with a design school, an auditorium, a café, exhibition galleries, and a library.

Even the most determined development devotee can see what's worth saving in an old limestone custom house with 48-foot-high Doric columns. Or a brownstone church with an elaborate steeple, casting its dignified shadow over a graveyard dotted with mossy headstones of 18th-century notables. Or those cast-iron-fronted warehouses with elaborate copper cornices and tin awnings, forever stamped on our consciousness by shelter-magazine profiles of the celebrities who live in them.

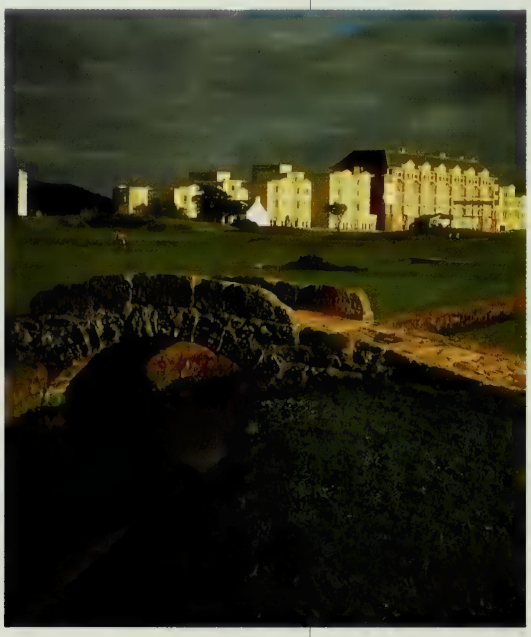
It's the problem buildings whose fates are increasingly up for grabs. They're not only too big or too small, but too weird: a monumental automobile factory in Italy with a racetrack on its roof has been saved, but hundreds of 1920s tourist cabins along near-defunct byways in the United States are still threatened. A 1953 gem of an A & W Root Beer stand in Boise, Idaho, was reincarnated as a coffee bar, but mid-19th-century mental institutions scattered across the nation—sometimes the grandest buildings in town—are slated for demolition, often despite their national landmark status. Industrial buildings without industry. Tourist cabins without tourists. Asylums without patients.

With grand houses in well-to-do villages and cities, the solution has often been clear, though not always ideal: make a museum. In Utica, New York, civic-minded planners proposed turning a 19th-century mental hospital—a palatial, 350,000-square-foot, neoclassical national historic landmark—into a museum of mental health. Perhaps not surprisingly, the idea came to nothing. Now preservationists are trying to find ways to turn these hospitals into apartments, hotels, or even golf resorts. Can you imagine billboards advertising these garden condos? "If You Lived in the Binghamton Asylum for the Insane, You'd Be Home Now." Maybe not.

A more realistic approach comes from John G. Waite, an upstate New York architect who is working on a multipurpose plan for an Athens, Ohio, mental hospital. While a museum figures into his current scheme for this 1868 brick behemoth with towers and slate roofs, at least it's a museum of American art, not a gallery of mental health. And his master plan for the 10-building complex also includes a much-needed expansion of nearby Ohio University.

Tracie Rozhon is a reporter for the New York Times, *where she covers real estate, preservation, and architecture.*





In St. Andrews, Scotland, a 1960s hotel (above) was altered (right) to harmonize with the golf course's older, grander hotel.

Preserving the 1950s and 1960s

For both preservationists and architects, an even stickier problem is the fate of thousands of exemplary '50s and '60s buildings (see "Bringing Back 1960s Buildings," in this issue)—which, because of their sheer numbers, may prove even more pressing than the rescue of stand-alone monuments like becolumned banks and one-of-a-kind Beaux-Arts power plants. With their perceived shoddy construction and the widespread belief that they aren't beautiful or interesting enough to save, these buildings may face an even shakier future than the grand-scale and soundly built asylum.

"There's a clash coming," predicts Peter Brink, a vice president at the National Trust for Historic Preservation, "between two streams of preservation thinking," between people who want to save newer buildings as layers of time and those who would just preserve beautiful old neighborhoods, rich with history and architectural detail. The first camp, he says with the suggestion of a sniff, "wants to save the first major strip mall," while the second group thinks, "'Oh, but that stuff's crap.'" He admits he's of the latter faction. "We'd go to the wall for a great Victorian neighborhood," Brink says. "But I'd be much more selective with the '50s and '60s."

And right now, at least, his faction is dominant. Generally speaking, buildings must be at least 50 years old to be considered for the National Register, though exceptions are permitted. Nevertheless, a search found no individual buildings completed after 1950 listed as national historic landmarks—only Philip Johnson's 1949 Glass House, in New Canaan, Connecticut, comes close. And only buildings with historic attributes (i.e., either listed on the National Register, or deemed eligible for it) are entitled to the 20 percent tax credit that makes so many adaptive-reuse projects economically feasible.

For John Waite, who is rescuing the Ohio mental hospital, '50s and '60s buildings present a much tougher challenge, not only economically, but also aesthetically and technologically. "I went to architecture school in the mid-1960s," Waite says, "and one of the reasons I went into preservation was a real concern about the craftsmanship of buildings just being built: they weren't being built to last." Indeed, the word craftsmanship seemed foreign when applied to post–World War II technology. "Eighteenth- and 19th-century buildings were constructed by hand or by early machines," he explains. "It's easy to replicate a hand-hewn brick or one manufactured by a primitive machine. The challenge is working with architecture from the recent past. It's much harder to replicate a curtain wall; the technology is obsolete. There's no way to run off a new curtain-wall panel. And how can you make Carrera glass? It's like trying to go back to a first- or second-generation computer: the hardware does not exist anymore."

Buildings of this era were often constructed with flimsy materials, including corrosive metals, that have deteriorated. Does an architect dealing with these structures use the elaborate and expensive methods perfected for restoring 19th- and early-20th-century monuments? "Should we pull out all the stops," asks Waite, "and use silk-purse techniques on sow's-ear buildings?" In many cases, the answer has been no.

Stripping down and changing styles

So far, most architects renovating 1950s and 1960s buildings have chosen to strip them down to the steel, gut the inside, and reclad the outside, trying (sometimes desperately) to make the building either look brand new or fit in with historic surroundings. In her new book, *Architecture Transformed* (Rockport, 1998), Nora Richter Greer highlights two such projects: a group of 1960s dormitories at Middlebury College in Middlebury, Vermont, and a 1960s hotel overlooking St. Andrews Golf Course in St. Andrews, Scotland.

At Middlebury, architects Einhorn Yaffee Prescott of Albany, New York, took a group of faded 1968 dorms by Shepley Bulfinch Richardson and Abbott, tore off the gray, ribbed-plywood panels, stripped them down to their concrete structure, and refaced them in Corinthian granite (which ranges in color from browns to blacks) with pink Stony Creek granite lintels.

At St. Andrews, RTKL Associates of Baltimore began with a 1960 four-and-a-half-story, brick-and-stone-faced hotel—dubbed "a file cabinet with its drawers hanging out" by locals—and gave it a mansard roof, stone cornices, and French doors to harmonize with the golf course's grander, older hotel. All the first-floor corridors were interior, says Tom Witt, the partner-in-charge, and one of Scotland's most idyllic views—the town, golf course, and North Sea—had been totally ignored. "We turned it inside out," he explains, "and softened the edges of the file cabinet."

In Marina del Rey, California, Jim McElwain of Caldwell Architects reports that his office has been swamped by recent requests to turn '50s and '60s schools—previously mothballed or used as office space—into state-of-the-art schools that meet current codes for fire safety, accessibility, and lead-free paint. Caldwell is working on six such projects, including the conversion of a 1959 concrete vocational school building into liberal arts classrooms for Santa Monica College. "Life has changed," he observes. "Community colleges are not interested in teaching people how to weld anymore. There aren't any factories!"

To effect the transformation, Caldwell's firm added a floor to the two-story structure, since land in Southern California is no longer cheap. The architects sprayed concrete on the floor slabs to stiffen them for earthquake resistance, and replaced tiny slit windows (that rendered the welding labs as dark as mushroom caves) with big, operable ones fit for sculpture classes. The building was then retrofitted with air-conditioning ducts and

computer wiring. With all that work, McElwain says, it was still cheaper to alter the 39-year-old building than tear it down and build anew.

Retaining the original character

Other solutions have maintained the historic integrity of buildings while refitting them for modern use. To James Stewart Polshek, preserving the recent past is "a very important issue." His firm has revived three 1960s Harrison & Abramovitz buildings and is currently working on Louis Kahn's Yale University Art Gallery.

With the Harrison & Abramovitz buildings, Polshek took a different tack. At Columbia Law School, Harrison & Abramovitz's Jerome M. Greene Hall had been nicknamed "The Toaster" because a strange, enclosed balcony stuck out the side, like a pop-up lever. While saving most of the upper stories, including the balcony, Polshek and Partners completely changed the base of the 1962 building, echoing the vertical concrete "pleats" of the upper section with an elegantly ribbed glass entrance. The architect replaced the escalator—which he says made the place look like a department store—with an elaborate, broad staircase. "We wrapped the base in a new package," Polshek explains. "Programmatically, it had been almost anti-student. The entrance had been forbidding, blocking out the neighborhood in an unfriendly way." Greene Hall, he adds wryly, is not one of Harrison & Abramovitz's best buildings.

The Yale Art Gallery, by contrast, presents a good argument for—as well as an example of the difficulties with—preserving exceptional architecture from the 1950s and 1960s. "We always knew we wanted to preserve it," says Polshek of the ongoing project. "Kahn's building has a kind of iconic importance to members of my profession: it's almost religious. It's a fantastic building." Nonetheless, the art gallery has many shortcomings typical of its period.

"It has very severe technical problems," the architect continues. The skin is detailed without a vapor barrier, and water has seeped in. The air-conditioning ducts, installed beneath reinforced concrete, are accessible only when the floor is ripped up. Spatially the building was designed, says Polshek, as a "universal space—and that's ceased to work." Built with nonoperable windows, the museum depended on mechanically recirculated air. And the ubiquitous accessibility issues haven't been worked out to Polshek's satisfaction—at least, not yet.

Questions for the new millennium

Exactly which buildings to preserve and how to save them will undoubtedly be debated into the coming millennium. Should architects replace the dated skins of buildings with pseudo-historical pastiches? When should they devise new facades influenced by existing surroundings, and when should they attempt faithful, full-scale restorations of Modernist landmarks? It's hard to know what will become important with time. If a building is already so changed that it's unrecognizable, the chances of its restoration are drastically diminished.

"SHOULD WE PULL OUT ALL THE STOPS," ASKS ARCHITECT JOHN WAITE, "AND USE SILK-PURSE TECHNIQUES ON SOW'S-EAR BUILDINGS?" PERHAPS NOT.

Although a multitude of '50s and '60s buildings were built, preservationists grumble that few distinctive examples remain. J. Winthrop Aldrich, New York State's deputy parks commissioner in charge of historic preservation, describes his office's futile search for the quintessential Levittown Cape Cod house. "We can't find one that hasn't been monkeyed with," he says. "How many thousands of these houses were built to the great model of William Levitt for returning servicemen? But before half a generation went by, the little houses were being remodeled for three children." Aldrich says he's conferring with state historic preservation officers around the country, trying to formulate "our positions on the big subdivisions, the shopping centers, and the freeways: the postwar era when automobile was king."

One Midwestern firm, Trout Architects of Boise, Idaho, has found a solution, at least for delightfully tacky roadside architecture: strip away the haphazard accretions and restore it to an eye-popping version of fin-de-millennium kitsch. In Boise, Trout took a much-altered former A & W Root Beer stand—a cinderblock structure with a flat roof and a drive-through canopy—ripped off traces of its past, and transformed it into a drive-through Moxie Java hut. The architect turned the backyard into a patio and commissioned a giant neon coffee cup for the roof.

"It's wicked cool—it rocks," says Burt Bedeau, the architectural historian at the Idaho State Historic Preservation Office. "I'm just waiting until it turns 50 so I can put it on the National Register!" ■





In Boise, Idaho, an A & W Root Beer stand–turned–seafood store (above) reclaimed kitsch appeal as a Moxie Java hut (right).

1 Landau City Library Landau, Germany

A 19TH-CENTURY SLAUGHTERHOUSE IS REBORN AS A LIBRARY, FORGING AN ELOQUENT DIALOGUE BETWEEN TRADITIONAL AND MODERNIST FORMS.

by Lisa Koenig

Project: *Landau City Library, Landau, Germany*
Client: *City of Landau*
Architect: *Lamott Architekten BDA—Ansgar Lamott, design principal; Sonja Schmuker, Bernd Treide, Fabian Determann, Jutta Wiedermann, design team*
Engineers: *Schreiber Ingenieure (plumbing and mechanical); Müller and Bleher (electrical)*
Consultants: *Brüssau Bauphysik (accoustical)*

At the turn of the century, the small southwest German city of Landau ranked its municipal slaughterhouse among its most celebrated cultural attractions. Regional guidebooks directed tourists to medieval churches, neoclassical fortifications, and the "expansive, extremely well-equipped" abattoir. The slaughter halls—recently transformed into a 19,500-square-foot city library—are once again bringing praise to Landau. Designed by Stuttgart-based architect Ansgar Lamott, the $4.8 million library opened last spring, nine years after the building's demise as a slaughterhouse.

The project's success owes much to Lamott's inventive use of industrial materials in integrating a Modernist addition with a 19th-century sandstone-and-brick edifice. "We played rough and fine materials off one another to differentiate spaces," notes Lamott, "expressing transitions from one space to another, from one era to another, and from the old building to the new."

The slaughterhouse complex—a 4.7-acre site with the slaughter halls and a water tower, both from 1884, and a circa-1893 cool-storage building—became overrun by a maze of shoddy but functional '50s and '60s additions. By the 1980s, most of the buildings had

Lisa Koenig is freelance journalist specializing in architecture.



Lamott replaced the slaughter halls' ragged party wall (left) with new concrete columns behind glazing and a louvered brise-soleil (opposite).

lapsed into structural disrepair. Finally, when the European Union's 1989 meat-processing regulations mandated costly renovations, the city closed down the complex.

Meanwhile, the post–Cold War abandonment of four of Landau's military bases further eroded the urban fabric. The need for citywide renewal was severe. In 1989, the town sponsored an idea competition for mixed-use redevelopment of the slaughterhouse site. Lamott won with a proposal that carved a town square in place of the decrepit 1950s-modified cool-storage building, which connected the water tower and slaughter halls. No plans were implemented until 1995, when the Karl and Edith Fix Foundation donated $4.5 million to transform the preservation-protected slaughter halls, a spacious twin-nave basilica, into the new city library.

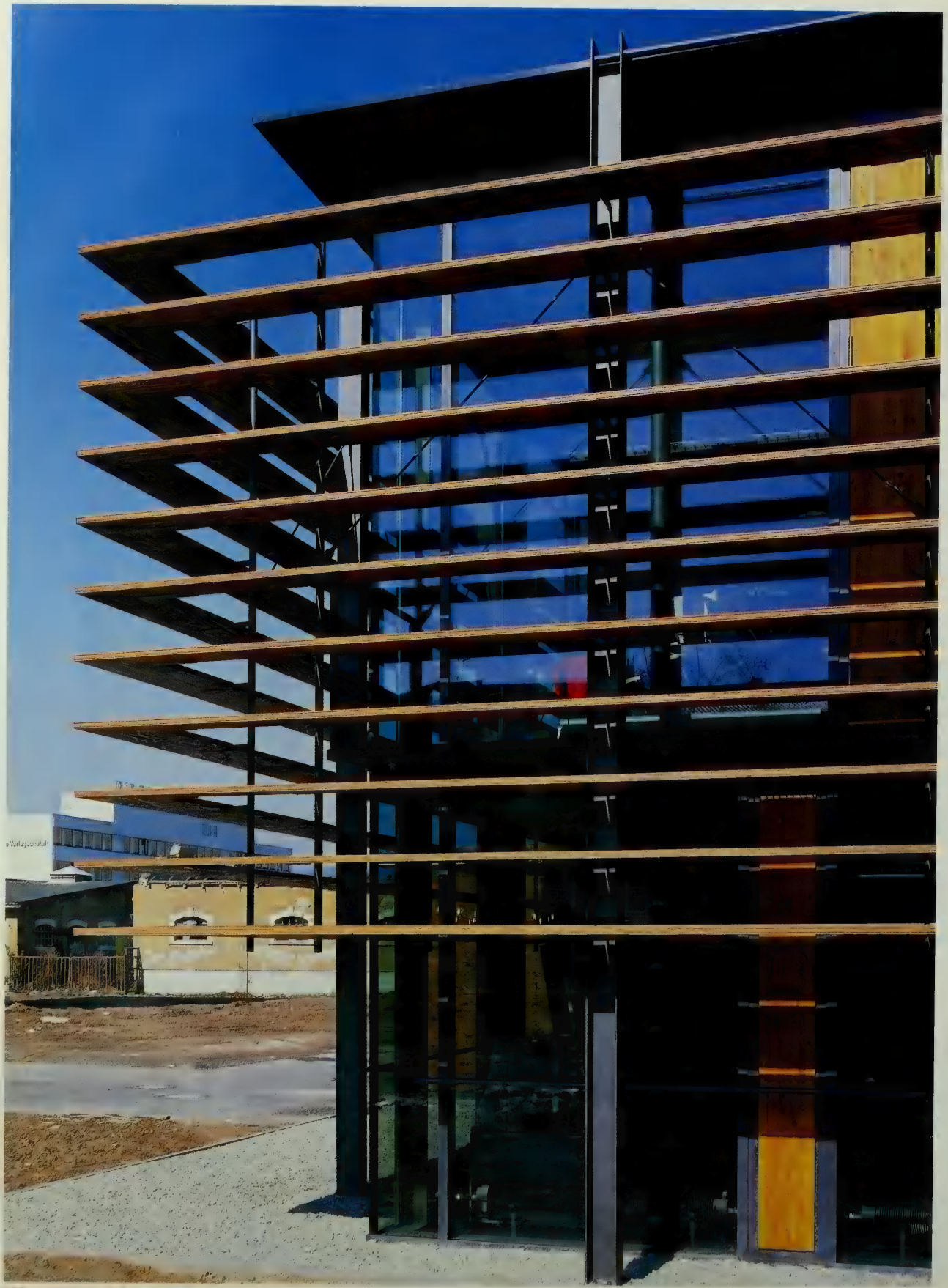
Turning the derelict abattoir into a modern library resisted simple design solutions. The historic building was too small to accommodate a program with 75,000 books, CDs, and periodicals. If a mezzanine were simply inserted, the floor-to-ceiling heights would be inadequate. Moreover, the existing sandstone foundations, weakened by water from the swampy ground, could not support the new loads. And the slaughter halls' front (or west) facade would stand as a truncated ruin—its lower half a ragged party wall—after demolition of the adjoining cool-storage building.

The architect's solution consistently forged a dialogue between old and new—juxtaposing lightness with heaviness, transparency with opacity, and traditional elements with simple machinelike interventions—to achieve an integral whole.

On the exterior, Lamott wrapped a wood-slatted brise-soleil around the existing masonry structure and his glass-and-steel addition. Mounted on a steel frame (which also supports the new curtain wall), horizontally fixed louvers float visually in front of the composite building, embracing and unifying it. Distinctions between existing and recent architecture remain clearly articulated, with the original twin gables—the clerestories above the two naves—rising behind the modern facade. Behind the louvered curtain wall, Lamott opened the



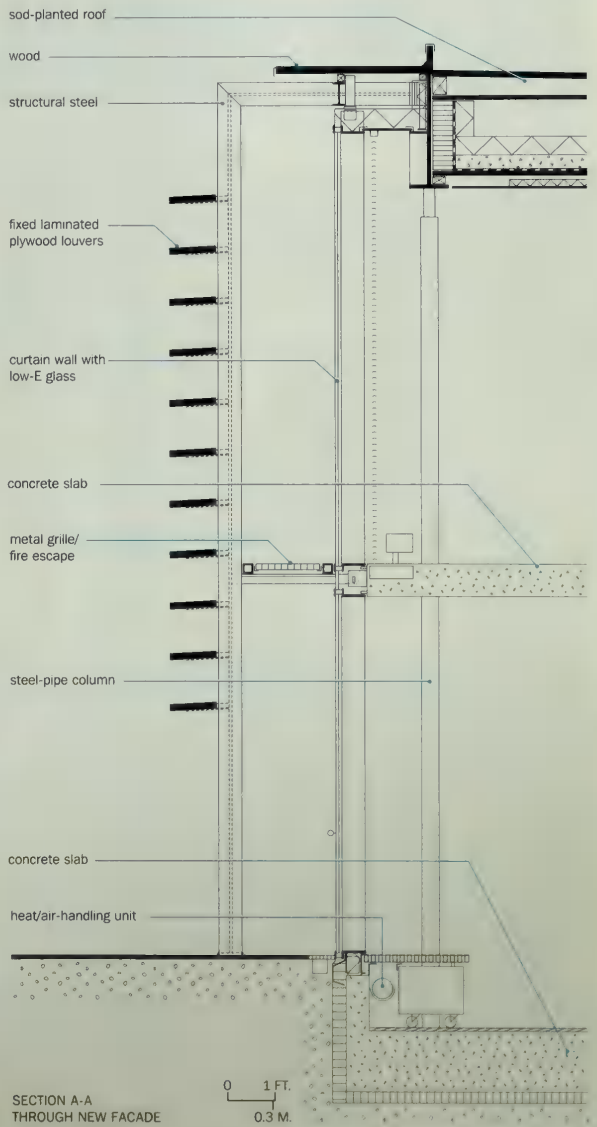




A steel structure supports the curtain wall, as well as Nordic-pine plywood louvers, which allow for transparency while shading the interior (right, below, and opposite). Louvers are set two feet from the face of the glass to provide minimum width for a second-story fire escape. Lamott gave the louvers open-ended fins (below and right), instead of wrapping the entire building. Befitting a library, the interior is legible from outside.







SECTION A-A
THROUGH NEW FACADE

New steel jambs (right) echo the tripartite composition of the original windows (below) above them. A wide steel bridge (bottom), acting as a lounge, links Lamott's mezzanine in the old building with offices in the new.

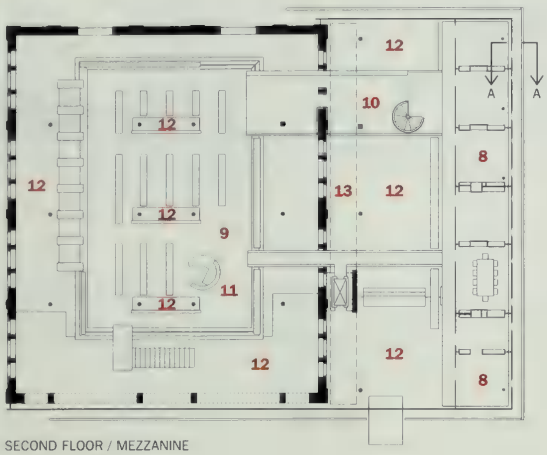








GROUND FLOOR



SECOND FLOOR / MEZZANINE

1. *Entry*
2. *Foyer*
3. *Exhibition/café*
4. *Children's library*
5. *Exhibition*
6. *Main reading*
7. *Circulation desk*
8. *Administrative*
9. *Mezzanine stacks*
10. *Audiovisual/bridge*
11. *Librarian station*
12. *Open*
13. *Skylight*

roblematic ground floor of the his-oric west facade and supported s upper half on new concrete olumns. From outside, the new ansparent facade reveals a deep nd inviting spatial layering.

Entering the building, the visi-r steps inside Lamott's addition, a anyonlike rectangular space that arallels the twin naves. The original outh exterior wall, massively built in isticated red sandstone, is now an terior screen. A seven-foot-wide kylight, along the entire length of is wall, articulates the juncture etween Lamott's flat-roofed build-g and the 19th-century structure. he modern extension, outside the asonry screen, houses the noisier ctivities: the entry foyer and circu-tion desk; a flexible zone with café ables and periodicals racks; the hildren's library; and, against the ew south facade, two floors of dministrative suites.

Within the old slaughter halls e the library's quieter regions: two evels of stacks for adults, and an xhibition area. Lamott addressed e structural limitations of the origi-al foundations by pouring a new oad-bearing concrete slab that is ndependent of the existing shell, ot even touching it. This separation etween old and new is accentu-ted by gaps or reveals where amott's floors meet the stone walls nd original cast-iron columns.

To provide a second level of stacks, the architect inserted a freestanding tablelike mezzanine, supported on steel pilotis. He depressed portions of the ground floor nearly two feet to increase floor-to-ceiling clearances. Eloquently expressing spatial metaphors through contrasting materials, Lamott marked transitions with changes in flooring: an asphalt screed in the grade-level foyer and exhibition area, echoing the street paving just outside, leads further inside to more typical interior finishes, with a warm industrial parquet in the café and stacks.





Original clerestory windows light mezzanine stacks (top). Modern and historic materials mark transitions between the two buildings (bottom).

Two steel bridges—modern interventions, railed with glass and planked with oak—penetrate the old south facade, crossing the canyonlike zone to connect the mezzanine to fire-escape routes and second-floor administrative offices. These bridges literally and figuratively link the historic and modern structures. Where Lamott pared away window surrounds to accommodate bridges, he placed simple bladelike jambs, austere steel plates, that acknowledge the opposition between old and new.

Rather than mimic a period style, Lamott drew on the authenticity and inherent qualities of modern materials. On the eve of the new millennium, his slaughterhouse-turned-library is a work of forward-looking architecture: an optimistic beginning to Landau's urban reawakening. ■

Sources
Curtain wall: *Hartmann*
Plywood louvers: *Kaufmann*
Lighting: *Licht + Raum, Sill, Rodust + Sohn, Bega*
Aluminum doors: *Metallbau Möckmühl*

2 Pagani Restaurant Los Angeles

RISING ON THE FOUNDATIONS OF A 1930s WAREHOUSE, A STYLISH RESTAURANT COMBINES INDUSTRIAL TIMBER WITH SOARING FORMS.

by Terry Bissell

Project: *Pagani Restaurant, Bar & Lounge, Los Angeles*
Clients: *George and Robin Pagani*
Architect: *Hagy Belzberg Architects—Hagy Belzberg, AIA, project architect; Javier Suarez Jr., project manager; Sean Gallavin, Chris Tallon, Serene P. Lee, Camilla Foulk, design team*
Engineer: *Dan Echeto Consulting Engineer*
Contractor: *Pacific Southwest Development*

If the three quintessential Hollywood arts are the triumph over less-than-glamorous beginnings, the creative rearrangement of skin, and the dramatic entrance, Hagy Belzberg Architects has made Pagani Restaurant in West Hollywood a standard of filmland virtue.

At the southwest corner of Melrose Avenue and Robertson Boulevard, Pagani stands in the center of Los Angeles's decorator and restaurant district. In the 1930s, when the wood-frame stuccoed structure housed a furniture warehouse with an attached caretaker's cottage, the neighborhood was primarily light-industrial. More desirable real estate, Beverly Hills, lay literally just across the railroad tracks. Eventually, in a growth pattern typical of southern California, commercial enterprises serving the industrial sector flourished. The warehouse was converted to a furniture showroom and, later, to a high-end antiques shop.

In upscaling the property, the owners made a series of piecemeal changes to the 4,000-square-foot building that "reconsidered the occupancy instead of the architecture," according to architect Hagy Belzberg, AIA. A patio was added to display metal furniture, and the

Terry Bissell is the former architecture editor of Architectural Digest *and associate editor of* Arts + Architecture.



caretaker's cottage became the owner's residence. Minor renovations followed in the late 1970s, when restaurateur Peter Morton transformed the antiques shop into his namesake bistro and the cottage into its kitchen.

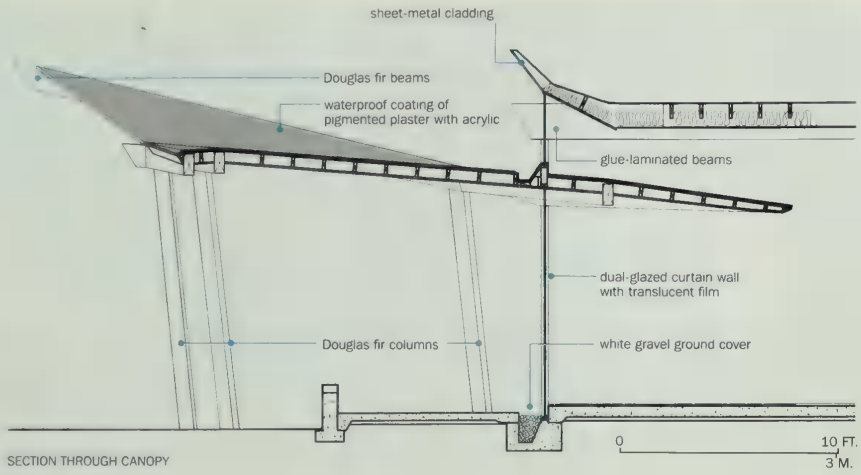
Again, the owners made no significant architectural interventions. As Belzberg points out, Morton's and its successor, Eclipse, were essentially "restaurants in an antiques store and house."

"The place was by now a nice artifact, but in horrible condition," says Belzberg. Neither he nor his client, George Pagani, wanted to preserve its 1980s pink-and-black aesthetic or its constricted circulation pattern. The footprint, however, had to be retained to comply with strict zoning laws, and both owner and designer sought to bring out the building's strongest feature: its connection to the neighborhood's historic fabric.



Belzberg deemed the warehouse's bowstring truss, which had been concealed by a low ceiling, the one element worth preserving. Using the exposed-timber roof structure as a departure point for new construction, the architect made Douglas fir the primary detailing material. Along with new olive-pigmented, poured-in-place concrete floors, the heavy timber recalls the building's earlier industrial incarnation.

With its sculptural canopy and translucent curtain wall, the new east facade (opposite top) contrasts dramatically with the building's earlier incarnation as an antiques store (opposite bottom).



SECTION THROUGH CANOPY



Heavy timber columns supporting the canopy (above) recall the original warehouse's industrial aesthetic. At the eaves, the roof peels upward to expose raw connections and steel underpinnings.



lazing below the orizontal mullion is osted (opposite), xcept for a clear strip iat reveals the heads f patrons at the bar. rom inside (below), ie frosted glass bscures parking lot ews. The bowstring uss in the dining om (bottom) is origi- al to the 1930s arehouse.



1. *Entry*
2. *Patio*
3. *Dining*
4. *Bar*
5. *Kitchen*
6. *Office*





Belzberg cut away two abutting warehouse walls (necessitating seismic retrofitting) and established a continuous, unimpeded space spanning the two original buildings. He reconfigured the central area, adjoining the former cottage, into a bar and restrooms.

To blur the distinction between indoors and outdoors, Belzberg replaced the stuccoed east face with three steel moment frames and a glass curtain wall. The glazed wall appears to hover slightly above the ground, but it actually rests on a low concrete stem wall that's hidden in a white-gravel-filled planter. Lying to either side of the glass, the gravel both edges the exterior wall and borders the bar area, seeming to continue uninterrupted. Reinforcing what he terms the "outside-in condition," Belzberg turned the patio into an outdoor room with a retractable roof.

"We reused the form, taking the building from a very introverted, fortified box to 'veiled' architecture," says Belzberg. Glazing is frosted to shoulder height, where a clear strip reveals the heads of patrons standing at the bar. From the exterior, the obscure glass offers glimpses of the action inside; from the interior, it blocks out the parking lot in favor of treetop views. "We wanted a thoroughly seductive street element," the architect explains, "and at night, the translucent plane is the first thing passersby see."

A soaring entry canopy pierces the building as a sculpture of folded planes—an L.A. motif reminiscent of 1950s Googie-style diners and the subsequent work of architect Frank Israel. Belzberg's office constructed a three-dimensional computer model of the canopy's complex geometric form, through which they led the client on a virtual tour to convince him of the structure's impact and power.

Visually related to the warehouse truss, the canopy exposes its simple underpinnings: spliced steel members and industrial hardware. Timber columns, supporting it, tilt streetward. A waterproof coating of black integrally pigmented plaster with acrylic gives the canopy a striking presence.

"This project challenges the formal entry sequence with a three-part system of display, veil, and reveal," Belzberg suggests. Indeed, the canopy, with its funnel effect, highlights the patron's arrival in a fashion associated with red carpets and klieg lights. Further accentuating the see-and-be-seen experience, the translucent screen creates interest from the street—"like a flirt," the architect says. Finally, at the threshold, the full spectacle reveals itself as the eaves peel upward like a parapet, laying bare the building's raw detailed connections and intersecting materials. ■

Sources
Curtain wall: *U.S. Aluminum*
Window frames: *U.S. Aluminum*
Doors: *T. M. Cobb*
Roofing: *Mollot Sheet Metal*
Paint: *Dunn Edwards*
Doors: *T. M. Cobb*
Lighting: *Halo*
Cabinetry: *CVS Custom Woodworks*

3 The Cistern Hamden, Connecticut

A 92-YEAR-OLD CONCRETE WATER TANK OVERLOOKING YALE UNIVERSITY BECOMES A TRELLISED VILLA INFUSED WITH LIGHT.

by David Simon Morton

Project: *The Cistern, Hamden, Connecticut*
Owners: *Peter de Bretteville and Sheila Levrant de Bretteville*
Architect: *Peter de Bretteville, Architect; Neal Deputy, associate*
Engineers: *Vladimir Tusman (structural); Kenneth Scorbatti (mechanical)*
Landscape designer: *Deborah Nevins*
General Contractor: *Dickson Construction*

When two newly appointed Yale professors visited a friend's Hamden, Connecticut, home several years ago, they spotted a curious object at the end of the street. There, at the top of a steep hill overlooking New Haven and Yale University, and Long Island Sound beyond, stood a 365,000-gallon concrete water tank. This cistern, built in 1907 and decommissioned in 1977, seemed uninhabitable yet permanent, an oddity occupying a choice site in a highly desirable residential neighborhood. Attracted to the structure's simple cylindrical geometry, architect Peter de Bretteville and his wife, Sheila, a graphic artist, purchased the cistern and determined to convert it into their home.

Among the houses that line the street—Modernist boxes and brick neocolonials—the derelict cistern's nearly pure Platonic form gave it gravity and a presence far more imposing and interesting than its neighbors. "In the past, buildings for public works were built as temples," says de Bretteville. Indeed, even the cistern's dimensions revealed a mathematical rationalism: measuring 50 feet in diameter and 25 feet in height, the cylinder sits on a square grassy plinth exactly 100 feet long on each side.

Although much of the exterior concrete had spalled, the double-banded cornice that crowns the cistern remained mostly intact, as



A construction view of the cistern's north elevation (left) shows the existing stair tower and new double-height window openings. Bay windows with aluminum mullions painted black were added on the east face (below). On the south side, a trellis is visible from below (opposite, top left and bottom).

did the 66-inch-wide octagonal stair tower leading to the future roof deck. Repairing the crumbling 18-inch-thick concrete wall (with exposed rebar) would have been costly. Instead, the architect insulated the cistern from the outside and encased it in stucco. The cornice depth remained unaffected since the original wall canted slightly outward and the new surface tapered toward the top. The concrete shell now provides an efficient thermal mass that helps keep the inside cool in summer and warm in winter.

The architect sandblasted the circular interior, saving the resulting debris as material for a patio. He then washed the walls in two coats of lime to produce a translucent, greenish-white finish, and left the concrete ceiling bare to highlight imprints of the original formwork. Plaster-secured caulk, which had plugged old water leaks, left bulges



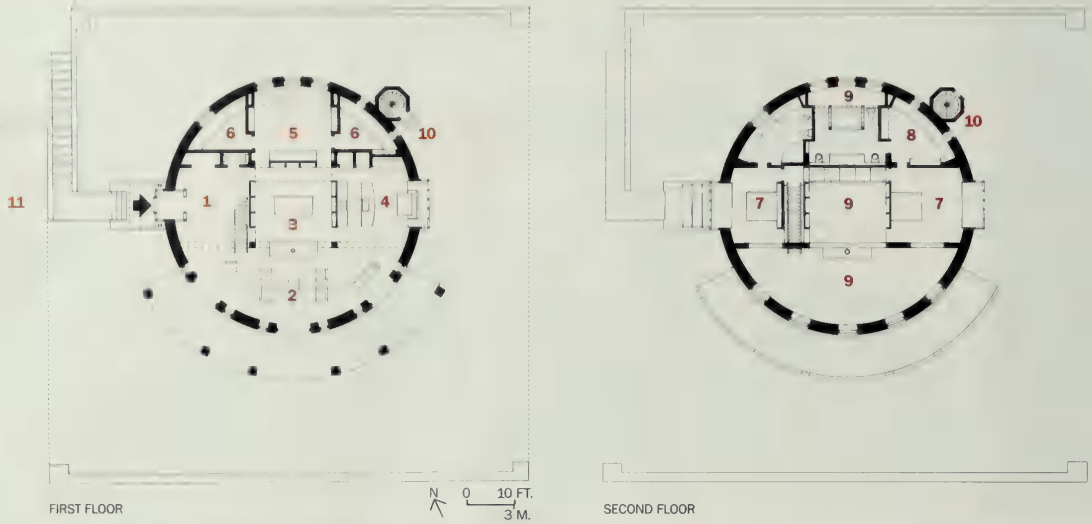




1. *Studio*
2. *Library*
3. *Living*
4. *Master bath*
5. *Stair tower*
6. *Patio*

NORTH-SOUTH SECTION

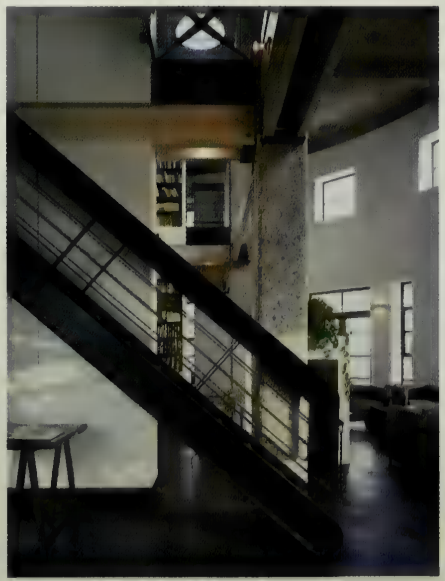




1. *Entry*
2. *Living*
3. *Library*
4. *Kitchen/dining*
5. *Studio*
6. *Offices*
7. *Bedroom*
8. *Dressing*
9. *Open*
10. *Stair to roof deck*
11. *Garage*

A glass walkway leads from the stairs to the master bedroom, through a double-height library (right). Ceiling oculi and extensive glazing fill the interior with daylight (below and opposite).





in the interior surface that the architect chose to preserve. The irregular surface texture, along with aggregate and sections of rebar revealed at the cut for the front door, remain as reminders of the home's less-polished predomestic history.

Within the cylindrical shell, de Bretteville's plan follows the existing structural system: a tic-tac-toe pattern of two steel-reinforced concrete beams oriented north-south and two running east-west, with columns at the four intersections. Halfway up the columns, the architect attached paired glue-laminated Douglas-fir beams that repeat the ceiling pattern and define two floors of living space.

A two-story library occupies the plan's central square, opening onto the double-height living room to the south. Glazed patio doors with clerestory windows above draw sunlight deep into the house. Four oculi in the library's ceiling bring even more light into the central core. On the second level, two bedrooms flank the library on the east and west. To the north, the master bathroom's floor ends several feet short of the exterior wall, allowing daylight to stream through three double-height windows into a studio space below. Sunlight still reaches the bathroom through a glass-block partition.

Carving a home from a concrete cistern requires more than a rational division of space and copious windows. Here, de Bretteville achieves a sense of domestic grace through details. Most of the second-story flooring is tongue-and-groove yellow-pine decking, stained black on top and, like a traditional New England porch ceiling, painted light blue on the exposed underside. Outside the kitchen and bedrooms, bay windows pop from the facade; though they disrupt the purity of the cylindrical form, they open the rooms to more light. "The walls are very thick, and we needed a way to get these rooms closer to the natural setting," explains the architect.

The house's yellow-orange stucco, its light-filled interiors, and the canopied and trellised patio that partially rings it evoke a spirit far removed from its gray origins as a water tank. For the owners, the building embodies the memories the couple shares of a two-year stay in Lombardy, where even rationally composed villas answer to visceral needs for sun, warmth, and color. ■

Sources
Stucco: *Sto Corp.*
Tinted concrete for floor: *L. M. Scofield Co.*
Aluminum window and door frames: *Custom Window Co.*
Interior downlights: *Reggiani, Lightolier*



4 The White Lady Eindhoven, The Netherlands

A SPRAWLING FACTORY IS SAVED BY FITTING A MULTIPLICITY OF USES, INCLUDING A DESIGN ACADEMY, INTO ITS OLD CONCRETE SHELL.

by Tracy Metz

Project: *De Witte Dame (The White Lady), Eindhoven, The Netherlands*
Owner: *Foundation de Witte Dame*
Architect: *Dirrix van Wylick Architekten—Bert Dirrix, Pascal Grosfeld, Bart van der Velde, Timo Keulen, Tom Frantzen, Karel van Eijken, design team*
Engineer: *DHV-AIB—Robert Collignon*
Consultants: *Philips (lighting); Van de Laar Physicon (acoustical)*
General Contractor: *Building Company IBC/Van Straten V.O.F.*

By 1992, the huge gray-white lightbulb factory in Eindhoven, the Netherlands, had stood empty for nearly 10 years, and the threat of demolition was growing. Executives at Philips, the global lighting and electronics company that owned it, thought it would be a nice civic gesture to replace the factory's concrete carcass with a city square, and applied for permission to raze it.

The company's dreams of demolition faded when Bert Hermens, a local artist spearheading an effort to save the building, won the support of former Philips CEO Wisse Dekker. A consensus soon developed to find a new purpose for the building.

The White Lady, as the six-story complex has been nicknamed, was built from 1927 to 1930. First used for the production of lightbulbs and later radio tubes, it eventually faded in importance, becoming secondary offices and then a warehouse before being left vacant. Though it is neither an architectural jewel nor an official landmark, the factory has long been the heart of Eindhoven, Philips's hometown.

Still, it took years to figure out how to reuse the White Lady, a moniker acquired only in the 1990s as the old factory gained popular appeal. In 1993 Philips agreed to hold a competition for ideas for the building's future, and a year later a developer, IBC Vastgoed, conducted a feasibility study. As negotiations between city, developer, and owner dragged on, however, there must have been moments when the parties were tempted to substitute the word "elephant" for "lady."

The time for doubting is now over; the White Lady has been reincarnated as a center for design, art, and architecture. Developed by IBC Vastgoed along with Van Straten Bouw, the $40 million project benefited from about $10 million in subsidies from the city, regional, and national governments. Within its 344,000 square feet are Eindhoven's flourishing Design Academy, the concomitant European Design Centre, Philips's own industrial design department, the Eindhoven Public Library, local architecture, design, and art collectives, three shared exhibition spaces, a 120-





As a lightbulb factory, the complex was a key part of the local economy (left). Today it is a sign of Eindhoven's transformation from a city based on industry to one driven by knowledge (above).

Tracy Metz is RECORD's correspondent in Amsterdam and is the editor of the features supplement for NRC Handelsblad, *a Dutch newspaper.*

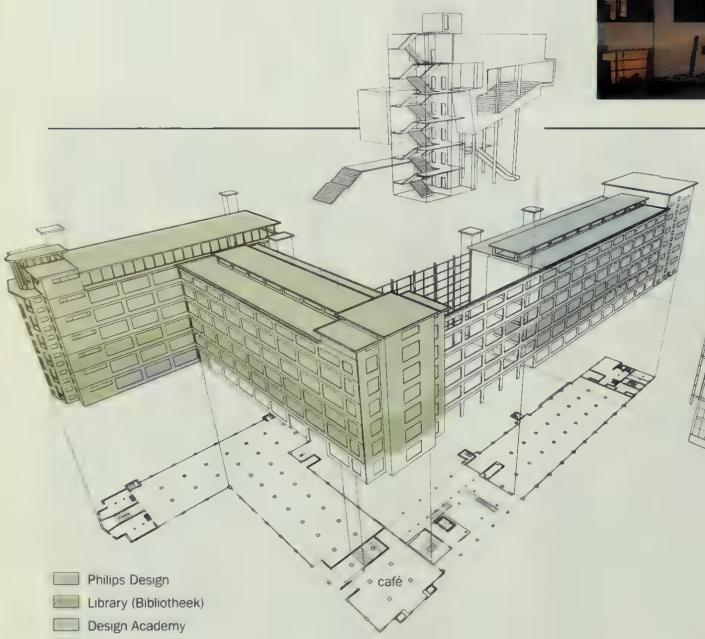


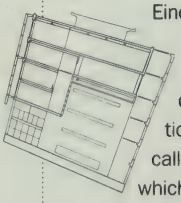
The building's fenestration was changed from small-paned windows to large double-paned expanses of glass (left). The Light Plaza (below) offers Philips a place to show off some of its outdoor lighting applications.



The major components of the new complex occupy areas that feed into a central circulation core with elevators and stairs (drawing below). Tenants include the Eindhoven Public Library (bottom), the Design Academy, the European Design Centre, the MU Art Foundation, and the offices of Philips Design (opposite).









seat auditorium, a bookstore, a grand café, a rooftop courtyard, and underground parking. For all of its uses, though, it does not feel cramped or full.

Eindhoven architect Bert Dirrix of Dirrix van Wylick Architekten directed the renovation or, as he prefers to call it, the reconstruction, which brought urban vitality to this monolithic L-shaped factory. Dirrix provided not only architectural solutions, but also urbanistic ones.

For example, the city wanted a new pedestrian route that would pass through the White Lady and lead past a planned neighborhood of 400 new homes to the existing soccer stadium. To create such a pathway, Dirrix cut a rectangular opening in the building measuring 83 feet high, 115 feet wide, and 69 feet deep. Only the old facade was left standing, delicate as a trellis, to maintain the continuity of the building's street face.

This newly opened space is the main circulation hub for the complex: elevators, stairs, and the start of a broad internal street with rough wooden floors. From this interior street visitors can see the underside of the auditorium, hanging between the third and fourth floors and pulsing with red light at night: the White Lady's beating heart.

Dirrix tore down two later additions to the rear facade and healed the wound with large glass panels, which add some variation to the building's uncompromising horizontal lines. On the top floor he cut out parts of the roof and the walls to create roof terraces, protected from the elements by large metal grids hung at an angle to the facade—a modern-day variation on Le Corbusier's brises-soleil.

From the rear of the building visitors can look down into the courtyard (formerly the delivery area), which is now paved with large Portuguese granite flagstones (laid by Portuguese workmen brought in specially for this task) and some impressively large boulders. On one side of the courtyard rise low, broad stairs that form a gathering place and a performance podium.

Philips's presence is still visible here: company lighting designers Harry Hollands and Dorien van der Weele installed small sunken lights in the flagstone plaza to highlight the boulders, as well as a red lighting strip along the walkway. A different type of lighting effect can be created with a series of nozzles that produce a layer of low-hanging mist through which various kinds and colors of light can be projected.

The only building in the courtyard is a small, steel-and-glass pavilion, painted bright red on the inside, where visitors pay their

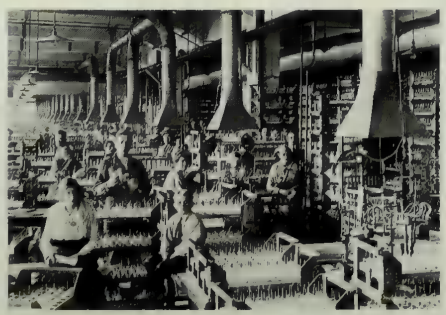


The industrial heritage of the new arts complex is reflected in materials such as concrete, metal, and wood planks used along the covered walkways that run through the project (right).





The manufacture of lightbulbs has been replaced by the pursuit of art. The Design Academy (above) offers degrees in industrial and interior design.



parking fee. It also contains an elevator and (equally red) stairs down to the 250-car garage. The side-street entrance to the garage is marked by a tall black canopy dotted with white neon tubes. Along one side of the entrance is a bright yellow pedestrian walkway. This sparing use of outspoken colors distinguishes the project's new additions from the existing building. Simple as it sounds, it works.

As in the renovation of other Modernist buildings, windows were a sensitive issue. The White Lady's original windows—long horizontal strips filled with countless small square panes—were already old-fashioned when the building was completed in 1927 and have never been very efficient. Dirrix replaced the charming but anachronistic glazing with long rectangular windows of double-paned glass that work much better at providing both sound and heat insulation.

Detailing throughout the building, though, remains true to the industrial character of the facility. Concrete walls are unpainted but covered with a clear latex layer. Metal fittings in the public areas are all galvanized steel, and wooden walkways retain a rough-hewn look.

Strategic surfaces in the central core of the building and the circulation zones along its sides are covered with western red cedar panels, the warm glow of which offsets the other rough-and-tumble materials. This almost anti-aesthetic approach works well, not least because it emphasizes the generic, nearly anonymous nature of the building, which functions as a shell within which users and visitors are free to develop their own identity. Indeed, individual components of the complex, such as the Design Academy and Philips Design, have been able to take different approaches to the design of their spaces without harming the integrity of the whole.

To the architect's credit, in dividing up the White Lady for a variety of different uses he has retained the original clarity of the building's organization. At the main entrance, signs direct visitors to the various destinations within the building, but because of the clear plan there is no need for separate nameplates or doorbells.

First a factory, then an eyesore, the White Lady is now home to artists and open to all. Retaining this collective character will be the building's next challenge. ■

Sources
Steel windows: *Moeskops and Goma*
Aluminum windows: *de Groot & Visser*
Glazing: *de Groot & Visser*
Carpet: *Forbo Krommenie*
Office furniture: *Ahrend*
Interior ambient lighting: *Philips Lighting*

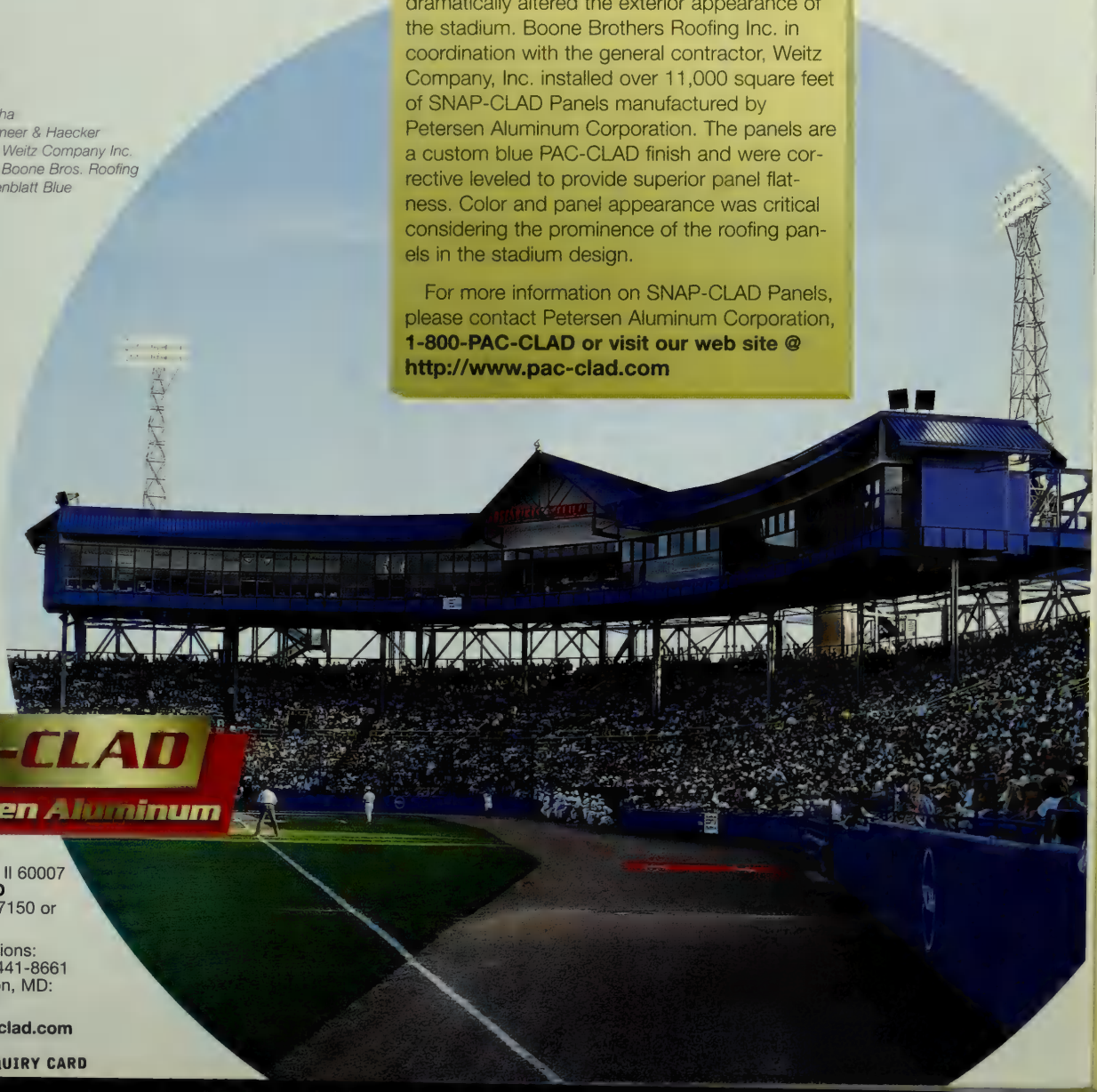
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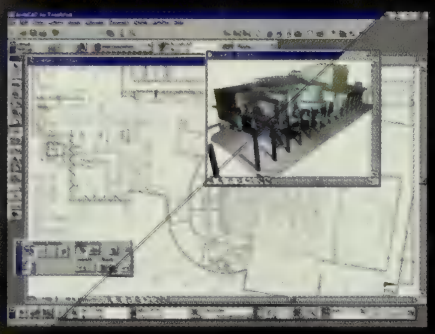
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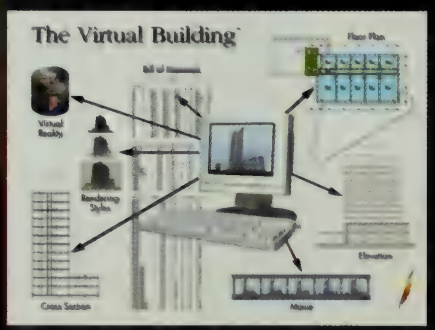
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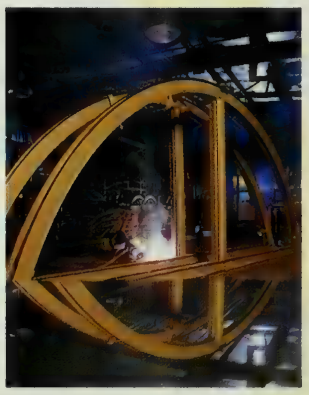
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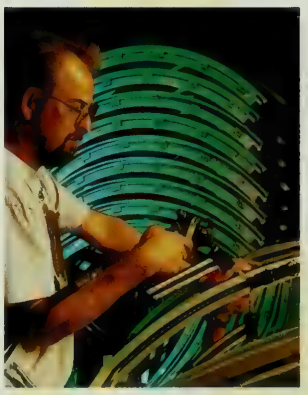
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Bringing Back 1960s Buildings

ALMOST 40 YEARS LATER, MANY OF THE OFFICE BUILDINGS ERECTED DURING ONE OF THE MOST PROSPEROUS ERAS IN HISTORY LOOK OUTDATED AND NEED NEW SYSTEMS.

by Nancy Solomon, AIA

After spending a decade recovering from the belt-tightening years of the Depression and World War II, this country experienced an unprecedented building boom that lasted from the mid-1950s through the 1960s. No segment of construction went untouched in those years of prosperity. In the city, office towers grew to staggering heights while, in the outlying countryside, new suburbs took root with their now all-too-familiar production tract houses and strip malls. College campuses expanded and new ones were formed. Resorts, office parks, apartment buildings, recreation areas, galleries—all these building types burgeoned.

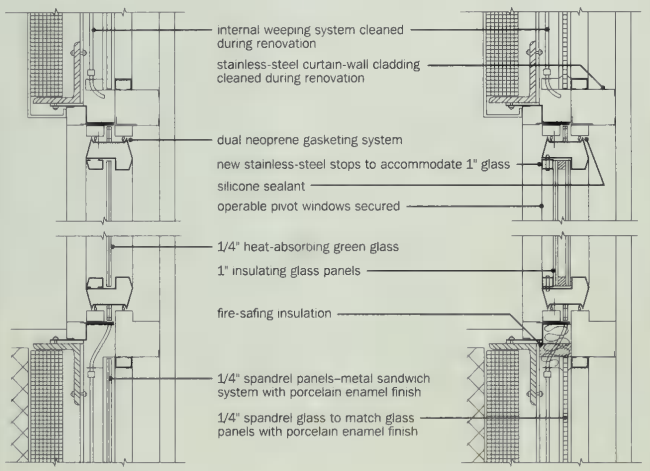
The International Style—what we recognize as modern architecture—dominated the period. The universal rectangular pavilion, pioneered by Mies van der Rohe, was particularly influential. Its rational grid structure, modular cladding, and other efficiencies dominated commercial construction. Unresponsive to site, orientation, or program, this type of structure could house virtually any type of function. The form also lent itself to speedy construction and cost savings, two highly valued requirements during "an era of frenzied expansion," says Steven M. Goldberg, FAIA, at Mitchell/Giurgola Architects in New York City.

To some extent, this stylistic movement is characterized by its "ongoing experimentation with new structural techniques, materials, and ways of joining materials," says Richard Longstreth, director of historic preservation at George Washington University in Washington, D.C. By the 1960s, these new materials and systems, many of which were spinoffs of the war effort, had become available to the building community in large quantities. The industry was eager to work with them.

Of course, in those days, architects didn't live with the constant fear of being sued. "Error and omissions weren't an issue," says Jack Train, FAIA, retired partner of Chicago-based Valerio Dewalt Train Associates. Designers had greater freedom to work with new techniques and materials without worrying about the legal ramifications.

The experimentation also came courtesy of a young and ambitious class of architects eager to leave their mark. "In the 20-year hiatus during the Depression and the war, experienced architects died or retired," says Walker C. Johnson, FAIA, of Johnson Lasky Architects in Chicago. Younger architects, including Johnson, had few mentors to guide them, so they were more open to new technologies than ever before. However, a band of architects working without experienced guides meant problems, too. In those years, Johnson helped design curtain walls at Holabird & Root in Chicago. Now, 40 years later, his own firm restores and rehabilitates them.

UPDATING THE OLD CURTAIN WALL on the International Union of Operating Engineers headquarters in Washington, D.C., entailed replacing the existing glass and thoroughly cleaning the components.



Prosperity brings problems

But the increase in products—ranging from curtain walls and exposed concrete to sealants and, of course, plastics—coupled with the explosion in construction meant that many of these new materials and systems were never adequately tested before installation. Unfortunately, some of these products only revealed their weaknesses in situ, after months or years of exposure to the elements.

In recent years, significant expense has been incurred to repair

CONTINUING EDUCATION

Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD/ AIA Continuing Education article. To receive credit, turn to page 142 and follow the instructions.

LEARNING OBJECTIVES

After reading this article, you should be able to:

1. Identify the design problems plaguing many office buildings from the 1960s.

2. Describe the limitations of glass curtain walls from that era.

3. Compare the characteristics of 1960s buildings to those that are desirable for office buildings in the 1990s.

4. Describe how the heating and cooling of office buildings are handled differently now than in the 1960s.



CASE STUDY

The International Union of Operating Engineers national headquarters in Washington, D.C., was designed by Holabird, Root & Burgee. The union represents the "stationary" engineers who operate and maintain buildings. The steel-framed structure, considered highly innovative when completed in 1959, featured materials and systems that became commonplace in buildings of that era.

The 97,000-square-foot building has held up well over the years, a testament to the quality of the original construction and the competent maintenance undertaken by its knowledgeable owners. But by the mid-1990s, the building's systems had reached the end of their useful life, the interior spaces needed reorganization, and the well-worn edifice needed spiffing up.

The future of the facade and lobby were debated by the building owners and the architects, Einhorn Yaffee Prescott. "The original building, with its stainless-steel details, etched glass, and ornamental staircase, was magnificent," says Andrew W. Prescott, AIA. But the owners wanted to tear off the curtain wall and gut the entry floor because they thought it old-fashioned. In the end, the architects convinced the owners that the existing elevation and lobby were indeed elegant, comparable to contemporary designs, and represented a significant savings in renovation costs.

Yet the lobby presented its own challenges. Today's fire code, for example, requires that the ornamental staircase be enclosed. To get an exception from the building department, the designers skillfully integrated a sprinkler system into the existing stairs.

The curtain wall was basically in good condition (see illustration, page 137). The stainless-steel system was refurbished and the water sealant repaired. The pivoting window system was permanently closed and inch-thick insulating glass was used to replace the original ¼-inch glazing. The original metal spandrel panels were replaced with glass to match the glazing elsewhere. In so doing, at least one design compromise was made: the original horizontal banding was eliminated. "But it could be put back one day," Prescott suggests, perhaps wistfully.



Renovating a building for an association of engineers meant installing state-of-the-art internal systems.

Given the union's area of expertise, there was no question that the building's operational characteristics had to be state-of-the-

these unforeseen problems. One of the most infamous examples is the Amoco Building, an 80-story tower designed by Edward Durrell Stone and built in Chicago in 1972. By 1985, the thin Carrara marble panels that sheathed its curtain wall began to bow and crack due to exposure to Chicago's extreme weather. All the panels were replaced with granite in 1991, at a cost of approximately $80 million.

In New York City, the glazed-brick veneer of several high-rises dating from the 1960s has failed as the buildings' lightweight structural concrete frames have shrunk and the steel angles, meant to support the brick, subsequently shifted. Similar problems with curtain walls have occurred in cities across America. Clearly problems with the differing coefficients of expansion of brick, concrete, and metal were not anticipated in the wide-eyed and ambitious 1960s.

Problems bring opportunities

The aging and often nondescript 1960s office structures represent a growing opportunity for architects. According to Jan Keane, FAIA, also at Mitchell/Giurgola, new programmatic requirements, failure of the exterior envelope, and outdated systems are motivating building owners to renovate their buildings so that they can be well positioned in the market for another 30 years.

The cost of renovating these buildings varies widely and depends on the existing structure. Those framed in steel, for example, ar more likely to require an extensive and costly asbestos abatement pro gram than those framed in concrete. A building whose entire curtain wal is failing will demand more work and a greater investment than one tha merely needs new windows. And those that were originally outfitted fo air-conditioning may require less mechanical tinkering. The new pro gram also significantly affects the cost; if the proposed use is compatibl

OFFICE BUILDING TENANTS ARE LOOKING FOR MORE AMENITIES THAN THE OLDER BUILDINGS OFFER.

with the old, construction will be less disruptive and thus less expensive

Today, office building clients are looking for more amenitie than the older buildings offer. These 1960s structures were planned in functional, efficient, and straightforward way. As a result, they lack th extra touches that attract today's tenants. For example, building entrance from that era were usually understated, elevators often emptied directly into corridors, all types of gatherings were frequently served by one mul tipurpose room, and perimeter offices, limited by the repetitive glazing pattern on the exterior, were virtually identical. Owners now prefer invit ing entrances, elevator alcoves that receive and orient visitors, a mix o

art. The design team replaced its 70-percent-efficient steam boilers with 85-percent-efficient water boilers. The original chiller, which consumed 1.10 kw of energy for every ton of air-conditioning, and ran with the ozone-depleting refrigerant R-11, was replaced by a .57 kw/ton centrifugal chiller that relies on the more environmentally friendly refrigerant R-123. The existing constant volume system was converted to one of variable air volume. The old pneumatic controls were replaced with a direct digital control and energy management system. A thermostat in every room allows occupants to control the temperature of their own spaces.

The system is designed to take advantage of outdoor air in the winter to cool the building interior. Known as the economizer cycle, cold air is drawn from outside into the air handlers. Hot water piped from the boiler to the air handlers reheats the air to 55° F, which is then blown to the variable air volume (VAV) boxes.

Unlike the interior, the perimeter must be heated in the winter. Perimeter VAV boxes, therefore, are equipped with hot-water coils that can further heat the air. These coils eliminate the need for the perimeter fan coil units of the old system, thereby saving valuable floor space.

The mechanical infrastructure was not the only system that had to be updated. Fire-safety, electrical, telecommunications, and lighting also had to be revamped. Just a few of the upgrades include mounting a generator on the roof to run the fire pump, egress lighting, fire alarm system, telephone, and security systems in case of emergencies; increasing incoming electrical service from 120/208 to 480/277 volts; hanging cable tray above a new suspended ceiling to distribute conduit; and installing more efficient lamps. The total costs for the renovation were close to $7 million. *N.S.*





The original heating system (left), installed when the headquarters was built in 1959, was considered state-of-the-art. Though it served the building well, it was replaced in the recent renovation. The original lobby (above), however, was retained with some minor changes, including a new sprinkler system.

public spaces to serve a variety of programs, and an office layout that allows for distinctions between spaces. In addition, owners are required by the Americans with Disabilities Act to make their renovated facilities accessible. This translates into ample circulation space, larger bathrooms, and a variety of user-friendly fixtures and hardware.

Upgrading these buildings means addressing the problems that typically plague early curtain-wall systems. "Probably the hardest element to upgrade is the stick-built curtain-wall system because there was no redundancy in the system," says Michael J. Scheffler, an engineer with Wiss, Janney, Elstner Associates in Chicago. Joints, materials, and dimensions may vary from floor to floor. Early curtain walls relied heavily on sealants to prevent water from penetrating at panel joints. Internal backup systems were rarely installed to collect and divert water once the sealants deteriorated and water seeped in. The long-term result was air and water infiltration. In addition, it is not uncommon to find curtain walls of the era constructed with incompatible metals, leading to the oxidation of key elements.

Consistent with Modernist principles, many of these buildings were sheathed with large expanses of glass—all of it single-pane. "Energy performance wasn't much of an issue in the 1960s," explains Thomas C. Jester, architectural historian of the Preservation Assistance Division of the National Park Service in Washington, D.C. Energy standards, obviously, are much more stringent now; low-E, double-glazed panels are the norm in renovation work.

Old, old systems

Internal systems from the period have usually reached the end of their life span, or have been rendered inefficient by newer technologies more suited to the needs and requirements of the 1990s office environment. For example, older mechanical systems "ran without modulation from 9 to 5," explains Alan Traugott, of Flack + Kurtz Consulting Engineers in New York City. But today's tenants work varied schedules and are concerned about energy savings and indoor air quality. They also have a greater awareness of the link between comfort level and productivity. As a result, building owners are asking for sophisticated systems that offer individualized climate control.

Offices are now filled with personal computers, printers, copiers, and fax machines, requiring electrical, climatic, and telecommunications infrastructures that can handle heavier loads. Dramatic changes have occurred over the years in fire and life-safety requirements as well. Safe havens, pressurized staircases, sprinklers, and more sophisticated alarms must now be incorporated in an office renovation.

In many cases, thanks to Mies and his followers, the original framework has enough strength and flexibility to accommodate the



CASE STUDY

The Courtyard by Marriott in Washington, D.C., formerly the headquarters of the National Rifle Association (NRA), was designed by Clas & Riggs Architects in 1959 and built in several stages in the early 1960s. The steel-framed building had a floor-to-floor height of 10 feet, eight inches. Today, floor-to-floor heights for office construction measure about 12 feet, eight inches for steel framing and 11 feet for concrete structures.

While office buildings from the 1960s are not known for their ample floor-to-floor heights, the situation is even worse in the nation's capital, where there is a longstanding building height limitation. "Because of these restrictions, many of the older office buildings in Washington cannot be upgraded to the Class A buildings that are characterized by a variety of features demanded by the current market, including large floor plates, lots of windows, sophisticated lighting systems, and a high level of finishes," says Mark Boekenheide, AIA, of Brennan Beer Gorman Monk (BBGM) in Washington, D.C., architects for the renovation.

The NRA, which relocated to Virginia, sold its former headquarters to the Bernstein Companies of Washington, D.C. With the help of BBGM, the owners researched the optimum use for the eight-story, 126,000-square-foot building. The low floor-to-floor height, small floor plate (10,000 square feet), and square rather than rectangular footprint precluded the Class A rating. "This could have become a decent Class B building, but it didn't pencil out economically," Boekenheide adds. Although the location—between a fringe commercial district and a residential neighborhood—was fitting for an embassy or an association, these functions couldn't generate the rents that were desired by the new owner.

The solution was to create a mid-level, limited-service hotel. The need for such accommodations was great, the quasi-residential downtown location was appropriate, and the property and renovation costs were competitive. The eight-foot, four-inch maximum finished floor-to-ceiling height, too low for an office building, was just right for a hotel. And the building's narrow width (90 feet) meant there would not be excessive internal space at the suite levels; too much interior space on the upper floors is not economically viable for a hotel.

The architect's efforts were first concentrated on the original curtain wall, which consisted of vertical piers of white marble alternating with vertical aluminum frames. These contained single-pane, clear-glass, center-pivot windows and metal spandrel panels. The first and second floors, which once housed the NRA's firearms museum, were completely clad in black marble. This created a dim and oppressive interior and an uninviting exterior. The glazing system showed its age: the aluminum was pitted and corroded, the caulking and seals had deteriorated, and the windows were drafty and not very energy-efficient. The overall image was not fitting for a modern hotel.

The architects stripped everything off the outside of the building except for the white marble piers, which were in good condition. The Modernist rhythm of alternating glass and stone gave way to a more classical, three-part composition. On both the north and east elevations, the three central bays were handled differently from the wings: the windows are now recessed, green railings create the illusion of balconies, and the entire assembly is capped with a curved cornice finished with an exterior insulation and finish system (EIFS) that matches the color of the piers. The new glazing system consists of aluminum-framed, thermally insulated windows. The original metal spandrel panels were replaced with EIFS panels.

The building was fully gutted down to the parking levels. Typical of structures from the 1960s, the building needed a hazardous material abatement program to safely remove lead paint, vinyl asbestos floor tile, and asbestos pipe and duct insulation. "It was not a cheap process," Boekenheide says. In this case, the abatement program cost approximately $1 million.

The architects eliminated one elevator shaft and a fire stair to free up the west elevation for suites. A new fire stair was inserted at the south wall, which abuts a neighboring building. Guest rooms line the daylit perimeter. Rooms along the east facade are about five feet deeper than those along the west, offering long-term guests an expanded sitting area.

Service and amenity rooms, such as linen closets and vending machine areas, fill out the rest of the internal spaces.

The former NRA headquarters' mechanical, electrical, and plumbing systems had to be completely replaced to meet the demands of hotel guests. The new mechanical system, which includes fan coil units in every suite, allows guests to control temperatures within their rooms. Integrating the new mechanical system into the building was not particularly difficult because the fan coil units stack vertically, minimizing the need for horizontal ductwork and wiring runs.

Phone, data, and power outlets were installed in each guest suite to meet the electrical and telecommunications needs of business travelers. And more boilers were added to provide sufficient hot water to the guest bathrooms throughout the building. The final project cost, including all of the furnishings, was approximately $11 million. *N.S.*



The former headquarters of the National Rifle Association sat empty (top) before the building's new owners converted it to a hotel (above). Much of the building was stripped and gutted during the conversion.



CASE STUDY

ghthouse International in w York City began operations 1905 out of back-to-back brown-nes situated between 59th and th Streets in midtown Manhat-n. Over the years, the philan-opic organization alternately panded on one side of the site d then the other to accommo-te its growing research, educa-n, and administrative programs the visually impaired.

By the late 1960s, Lighthouse's adquarters consisted of a 15-ry office tower off 59th Street



that was linked to a six-story structure along 60th Street. The office tower was built in 1964, and it showed; the steel-framed structure was set back from the traditional street wall, had a dark, recessed entry, and was clad with gridded precast concrete that gave no hint to the variety of activities within. The six-story structure dated to the 1950s.

By the late 1980s, the 126,800-square-foot headquarters could no longer satisfy the organization's activities. The only room for expansion was above the 1950s building, but the structure could not hold the additional weight. Since the building offered no significant architectural value, contained asbestos, was equipped with an obsolete mechanical system, and did not have sufficient elevator capacity, the owner and design team from Mitchell/Giurgola Architects in New York City concluded that it should be torn down to make way for a new 16-story tower.

The 1964 tower, however, presented a different story. A cost analysis indicated that $2 million, or 8 percent of the estimated $25 million project cost, would be saved if its structure were retained. "It was a no-brainer to keep it," says Steven M. Goldberg, AIA. Eleven-foot floor-to-floor heights meant that the design team had to struggle to accommodate new mechanical, electrical, telecommunications, and lighting systems. In addition, the tenants were required to vacate the building during renovation because asbestos had to be removed and the central mechanical system had to be dismantled.

The original modular precast concrete and glass curtain wall to the south was in good condition. But, like most facades from the 1960s, it had been fitted with inefficient single-pane glazing. In addition, the windows leaked water and the precast concrete panels required additional insulation. Replacing the window frames and glazing would have been expensive and the final result would not have satisfied the client's desire for a new, consistent image on all sides of the facility. So, for slightly more money, the precast concrete panels were replaced with a brick veneer skin. The new windows consist of thermally broken white aluminum frames and glazing that is insulated and tinted.

The architects removed the existing brick veneer from the blank shear wall to the east, made appropriate structural changes to the diagonal bracing so that new windows could be added, and reclad the side with the same materials as the front.

The structural frame of the tower offered a great deal of flexibility. The architects shifted the core from the east wall to the west and relocated the corridor to the center of the floor plate. In doing so, they were able to increase the number of elevators, provide a proper lobby for the elevators off the main corridor, design restrooms that met current accessibility requirements, and dedicate sufficient square footage to telecommunications and electrical closets.

The renovated building required a new mechanical system. Unlike the original, which relied on a central fan for the entire building, the new system includes a fan room on every floor. This allows different floors to operate efficiently at different times.

Inserting the mechanical system was challenging because of the low floor-to-floor heights. The original ducts ran through the beams. The 1990s team followed suit, using existing openings or punching new ones. The tight ceiling plenum precluded standard variable air volume boxes, so the engineer designed a more compact system using a proprietary diffuser to control air volume and room temperature. In some locations, parabolic ceiling lights had to be surface-mounted because there was no room to recess the fixtures. "All of this required a significant amount of coordination," Goldberg says.

Additional space was gained by digging out the basement floor for a performance space; extending the basement and street level floors to the property line; and adding a floor at the top. Except for a centrally located mechanical mezzanine, the original third floor was demolished so that the heights of the second floor's dining and multipurpose rooms could be doubled. The final headquarters, including both existing and new construction, adds 170,000 square feet.

The new massing on 59th Street, with its expanded, open base, provides a welcome gesture to what had been an awkward urban design condition: it mediates between its older neighbors to the west, which were respectful of the property line, and the 1960s buildings to the east, which are set back from the street. *N.S.*



The original 15-story tower (top) was updated by adding a new top story and windows to the blank shear wall (far left). The new entry (left) mitigates the building's setback from the street.

changes. However, finding the space to weave in modern ductwork, pipes, cables, wiring, and lighting fixtures, often while a portion of the building remains in operation, can be difficult, especially when the floor-to-floor heights are low, a common condition in older buildings.

Facing larger questions

Architects working on 1960s office structures are inevitably confronted with the question of how much of the original material and appearance of the building to retain. While some of the outstanding office buildings of the postwar era, such as the Inland Steel Building in Chicago, built in 1957 and designed by Skidmore, Owings & Merrill, have attained landmark status, most are not held in such high regard. In fact, due to the relative ease of dismantling a curtain wall, it's not uncommon for the original skins of the buildings to be removed and replaced with a contemporary facade. "The 're-skinners' put on a facade that is in vogue, obliterating the original design," Walker Johnson says.

Some architects see the renovation of the more banal 1960s buildings as an opportunity to correct some of the structures' urbanistic problems; many were self-referential, stand-alone objects, unrelated to their environment. They were often set back, disrespectful of the street wall, their entrances functional but uninviting. In solving the programmatic problems of his clients, Steven Goldberg tries to create a more harmonious relationship between the 1960s structure and neighborin buildings.

Others, like preservation architect Hyman Myers, AIA, of th Vitetta Group in Philadelphia, believe in retaining the major features an materials, even when they are not in keeping with current design trend or when they seem at odds with other buildings in the area. "We trea these buildings in the same way as we would a 19th-century structure Myers says. "We don't want to lose 1960s buildings in the same way w lost Victorian buildings, which were so demeaned in the 1950s."

Yet preservationists recognize the conundrum presented b aging modern architecture. Preservationists are charged with retainin original materials, but many of the innovative materials used in earl

MANY OF THE INNOVATIVE MATERIALS USED IN MODERN ARCHITECTURE HAD INHERENTLY SHORT LIFE SPANS, MAKING THEM DIFFICULT TO PRESERVE

modern architecture had inherently short life spans. In addition, th Modernists themselves had no hesitations when it came to destroying tha which came before.

"In the 1950s and 1960s, architecture—ergo urban planning— became the demolition of urban context," explains Theo Prudon, AIA, o Cowley & Prudon Architects in New York City, and United States presi dent of DOCOMOMO, an international organization dedicated to th documentation and conservation of monuments and sites of the moder movement. "The irony is that the things that once caused demolition ar now worth saving; they are part of history." ■

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

INSTRUCTIONS

- Read the article "Bringing Back 1960s Buildings" using the learning objectives provided.
- Complete the questions below, then check your answers (page 216).
- Fill out and submit the AIA/CES education reporting form (page 216) or file the form on ARCHITECTURAL RECORD's Web site at www.archrecord.com to receive two AIA Learning Units.

QUESTIONS

1. What are the salient design problems presented by most office buildings built in the 1960s?

2. What are the problems caused by stick-built curtain walls ?

3. What are the desirable characteristics of current office buildings? How do they differ from the typical characteristics of 1960s office buildings?

4. How have the approaches to heating and cooling office buildings changed since the 1960s?

5. Why is it often difficult to retain the existing materials when renovating buildings of the 1960s?

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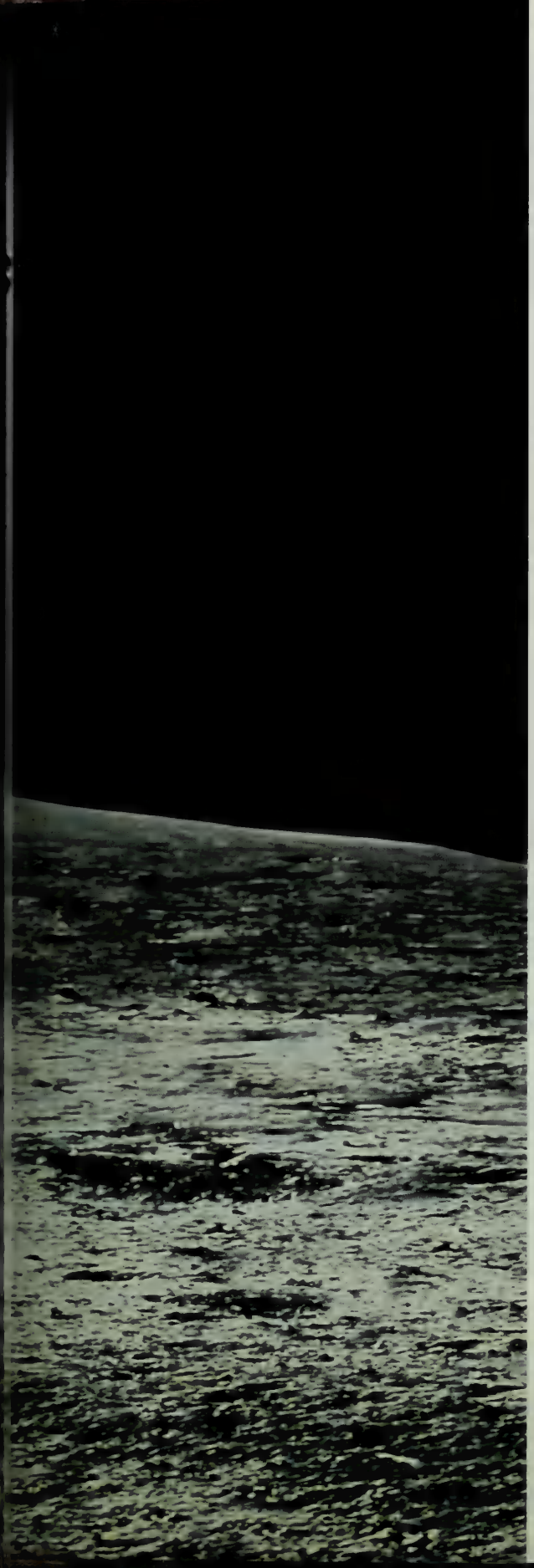
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New technologies and testing techniques, coupled with a shifting regulatory environment, are creating new unknowns for architects looking to specify fire-resistant doors and windows. The arrival in the U.S. of positive-pressure testing for fire doors and the response of manufacturers to the new standards will mean new options for designers of office suites, high-rise structures, hospitals, healthcare facilities, hotels and motels and other public spaces.

The 72-year-old National Wood Window & Door Association (NWWDA), which represents 45 window or door manufacturers and 60 hardware suppliers, has changed its name to the Window & Door Manufacturers Association (WDMA), a reflection of a changing marketplace and the emergence of new technologies and materials. Those who previously have visited the association at http://www.nwwda.org will find the association at a new web site: http://www.wmda.com.

"Our new name more aptly reflects both our market's directions and our members' resources," says Linda Semling, WDMA chairperson. "Wood will continue to be our members' primary material of choice. However, to offer specifiers more options, our members are delivering an increased range of products and materials."

"WDMA will always place primary emphasis on quality products designed to meet strict performance standards," says association President Alan J. Campbell. "Particularly on the residential side," says Campbell, "the newest technology developments in both vinyl and fiberglass window products moves them into the category of high-quality, high-performance window products. Many of our current members are introducing those products into their product mix, and we will also reach out to new members who have not participated in the association in the past because of a lack of wood-focused products."

With the name change come a new mission statement and a new set of strategic objectives:

—To promote the interests of the window, skylight and door industry and to enhance the association's position of leadership.

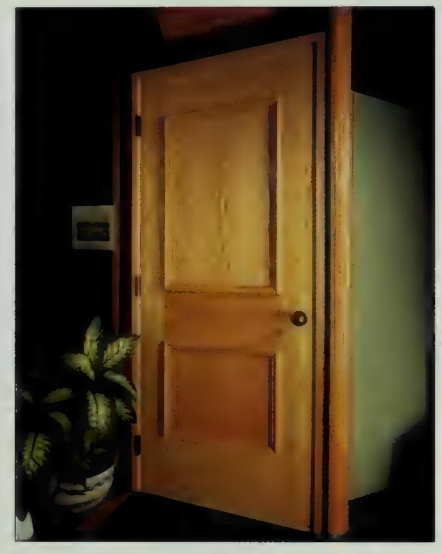
—To formulate and promote high standards of performance for the products of the window, skylight and door industry.

—To increase the use of the products of the industry throughout the world.

—To improve the conditions under which the industry must operate.

—To collect and disseminate pertinent industry data.

—To serve as the focal point for the exchange of technical expertise.



AIA / ARCHITECTURAL RECORD
Continuing Education Series

Use the following learning objectives to focus your study. After reading *Specifying Fire Doors and Windows*, complete the questions, and check your answers (page 154), AIA members may fill out th self-report form (page 216) and send it in for two AIA learning units that qualify for Health, Safety and Welfare credits:

Learning Objectives:

After reading *Specifying Fire Doors and Windows* and completing the exercises, you will be able to:

1. Discuss the debate over passive versus active fire protection systems.
2. Describe the consequences of the new UBC code adoption requiring positive-pressure fire door testing.
3. Compare the existing fire-door testing to the positive-pressure fire-door testing.

Hallmark Certification

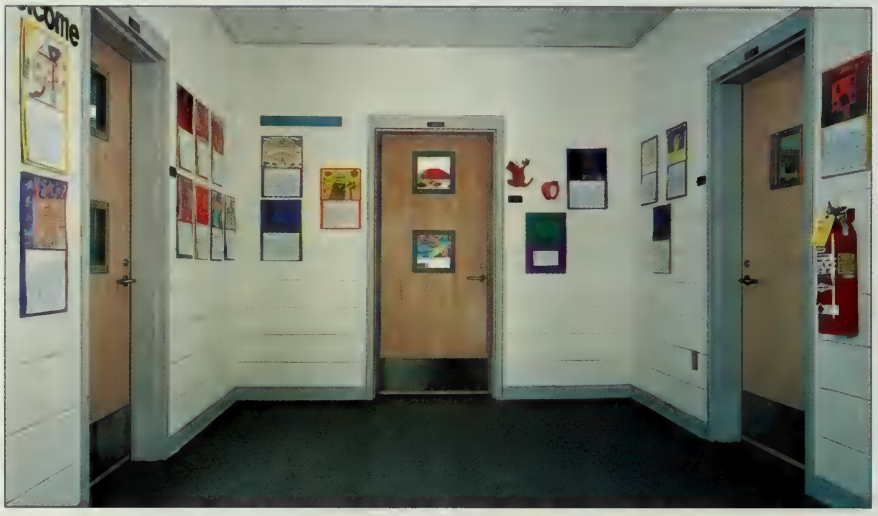
WDMA offers two programs that help the architect specifying performance properties of windows and doors.

The WDMA Hallmark Certification Program, gives specifiers a method of identifying windows, doors and skylights manufactured in accordance with WDMA standards. The NWWDA Hallmark is considered a mark of excellence among architects, contractors and other specifiers and is recognized industrywide. WDMA is also certified as an independent agency by the National Fenestration Rating Council (NFC). NFRC evaluates the energy conserving performance of windows, doors and skylights.

Six product areas fall within the Hallmark Certification Program. The products and the NWWDA or WDMA standard to which they must comply are: Architectural Wood Flush Doors (NWWDA I.S.1-A-97), Voluntary Specification for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors (AAMA/NWWDA 101/I.S.2-97), Water-Repellant Preservative Non-Pressure Treatment for Millwork (NWWDA I.S.4-94), Wood Skylights/Roof Windows

SPECIFYING FIRE DOORS AND WINDOW

The Industry is Ablaz



(NWWDA I.S.7-87), Wood Stile & Rail Doors (NWWDA I.S.6-97) and Wood Primary Entrance Doors (NWWDA I.S.9-88).

Any manufacturer who can demonstrate conformance to WDMA standards is eligible to participate in the Hallmark Certification Program.

Energy efficient product lines, to be certified, must be evaluated by two independent laboratories accredited by the National Fenestration Rating Council.

A first lab performs computer simulations to evaluate a product's thermal efficiency. A second lab performs actual tests of the product in a thermal chamber to determine the product's U-value.

If the values of the two tests are within a specified range of one another, the product is certified by an independent agency and periodic inspections of manufacturing facilities assure continued compliance.

Certified products will carry an NFRC label, and only products bearing an NFRC label may be considered certified. The certification process insures that windows, doors and skylights bearing the NFRC label will offer optimum value and desired performance characteristics.

This month, the Window and Door Manufacturers Association, in conjunction with the AIA/ Architectural Record Continuing Education Series offers a brief examination of forthcoming changes to fire door safety standards, testing procedures and possible impacts to manufacturers and designers.

WDMA membership includes the leading U.S. producers of wood sash, frames, window units, flush doors, stile and rail doors, sliding and swinging patio door units and skylights, as well as producers of the numerous other materials required to manufacture the industry's products. As a professional trade organization, it formulates and promotes high standards of quality for the industry. More information on the WDMA, its standards, procedures and literature can be obtained from WDMA, 1400 E. Touhy Ave., Des Plaines, Ill. 60018, (847) 299-5200. Or visit the WDMA web site at http://www.wdma.com.

POSITIVE-PRESSURE FIRE DOOR TESTING

By the end of 1999, according to the International Conference of Building Officials (ICBO), 99 percent of jurisdictions currently enforcing the Uniform Building Code (UBC) will have updated to the 1997 UBC, the first model code in the U.S. to require positive-pressure testing of fire doors.

Positive-pressure testing, referenced in many international standards and widely used to test fire-barrier products in Europe, Asia, and other parts of the world, came to the U.S. only after more than a decade of debate among regulatory officials, consultants and fire-door manufacturers.

The ICBO revised UBC statutes in September 1996 to require positive-pressure testing on swinging fire door and window assemblies. Those requirements took effect with the 1997 edition of the UBC. Jurisdictions enforcing the Southern Building Code Congress International (SBCCI) and the Building Officials and Code Administrators (BOCA) codes will undergo similar amendment as they move to adoption of the International Building Code (IBC), which could require positive-pressure tests. This process will takeplace more slowly and could ber extended over the next 10 years, or more.

The code changes, spurred in th U.S. by the National Fire Protectio Association, are intended to more accu rately address real-world fire cond tions, more specifically that during fire, air pressure within an enclosur becomes greater than the outside ambient air pressure. That occu because, as air is heated by fire, expands, causing pressure to build up Positive-pressure buildup increases th potential impact of fire on doors an windows and may cause flames to pen etrate cracks or openings in fire doors

Historically in the U.S., fire doo have been tested under neutral-or-neg ative-pressure conditions. For testin purposes, the "neutral pressur plane"—the point at which pressure equalized on both sides of the open ing—has been assumed to be near th top of the opening. Under positive pres sure testing, the neutral pressure plan is pushed downward to a height of 4 inches above the sill of the opening i order to increase pressure on the uppe two-thirds of the opening, more realist cally simulating potential "worst-case fire conditions.

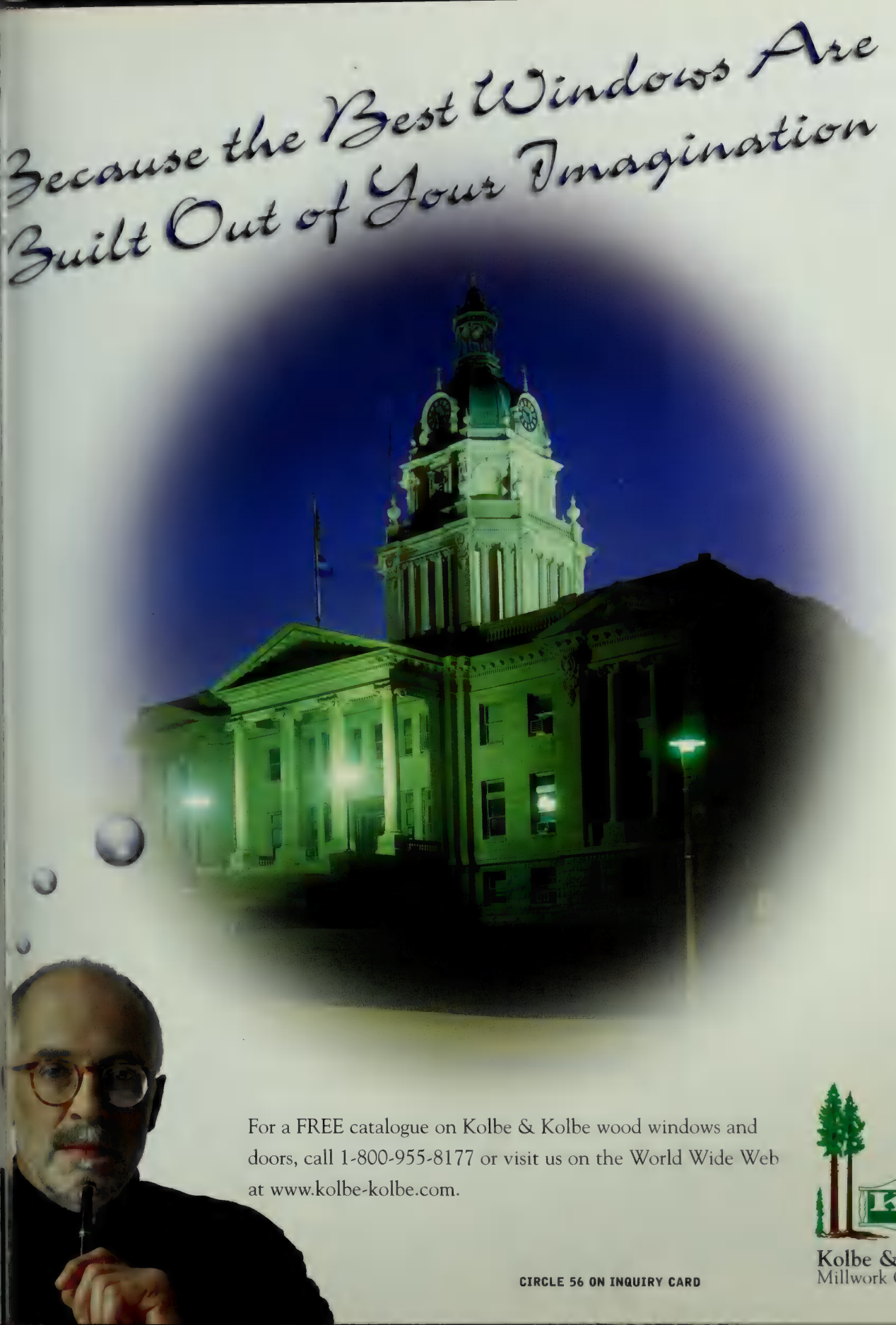
Revisions to UBC standard 7-2 (Fir Tests of Door Assemblies) and UBC 7- (Fire Tests of Window Assemblies) rep resent a fundamental change in hov swinging (it is assumed the assemblie swing outward) fire doors and windov assemblies are tested for fire resistance

Underwriters Laboratories, Inc one of two U.S. testing labs conductin positive-pressure fire testing (the othe is Warnock-Hersey), has adopted a new standard, UL 10C, Positive-Pressure Test of Door Assemblies, in response to th UBC revisions.

UL 10C specifies that the neutra plane in the test furnace be placed 4 inches above the door sill, creating positive-pressure exposure along th upper portion of the door assembly. U also performs a cotton-pad ignition tes on insulated doors to determin whether flames and gases pass throug cracks, holes, or other openings eithe within or around the door assembly Doors are then subjected to the impact erosion and cooling effects of a hose stream test, during which doors mus maintain their structural integrity. As i UL 10B, the negative pressure test pro tocol used by UL, the positive-pressur test evaluates doors for fire endurance and assigns them fire ratings in terms o minutes or hours.

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Photos courtesy of Weyerhauser

Fire-rated doors shown as part of the design element of these projects.

fully tested to UL 10C will be authorized to bear the UL mark, specifically identifying that they have been evaluated under positive pressure. They also will bear an hourly fire rating and the manufacturer's name or identification.

Warnock-Hersey also is developing a fire-door labeling program in which information as to type, hardware and required intumescents will be attached to the door panel for use by installers and code officials in the field to insure that required parts are installed.

With the advent of positive-pressure testing followed by hose-stream tests, the U.S. will have the most stringent fire door standards in the world.

What will be the impact on wood door products?

There is considerable confusion. Some suggest that standard-sized residential doors (6-ft, 8-in) with 20-minute ratings (which constitute about 90 percent of the current U.S. market) are likely to require little, if any redesign. Others say, however, that even 20-minute doors and certainly all 45-, 60- or 90-minute doors will require some form of intumescent. Code officials, they say, are likely to demand recessed intumescents, intended to prevent hot gasses from seeping around or through the door. Intumescents will add to the cost of positive-pressure doors, perhaps by as much as $25 per 20-minute door, up to $40 for a 90-minute door.

Larger doors with higher fire ratings (45, 60 or 90-minute doors) may require modification, either to stiles and rails, which may be of newly engineered composites, or to locks and closers, which frequently employ at least some interior plastic components vulnerable to fire. Or, doors may require changes to their core, using either thicker or more fire-resistant material. In specifying hardware, it is recommended that architects and contractors look for products certified to meet the more stringent standards.

Although the UBC's positive-pressure codes have already been adopted in all or portions of 14 states, few positive-pressure doors have hit the market. The vast majority of manufacturers—as many as 85 percent of U.S. suppliers—have yet to issue catalogues or pricing data on positive-pressure doors.

The dilemma for architects in those states governed by the UBC will be how to meet the demands of the new code with limited certified products. In the case of paired doors, architects may have to go back to astragals, which make one door active, the other inactive—systems long ago replaced by more sophisticated systems.

"The war stories are just beginning," says Kansas City-based door consultant Jim Berg. "Already there have been cases where code officials have rejected doors."

That means change orders, or worse, arbitration.

Opting for steel doors is not an option. When exposed to heat, wood doors tend to be more stable dimensionally than steel counterparts. Although the exposed veneer surface of wood fire doors will char or flame, their interior cores are non-combustible. Steel doors lose strength much more dramatically than wood doors. Steel doors start losing strength at around 1,000 degrees Fahrenheit, and because steel will expand when heated, cracks and seams are much more likely to occur through which flame may escape.

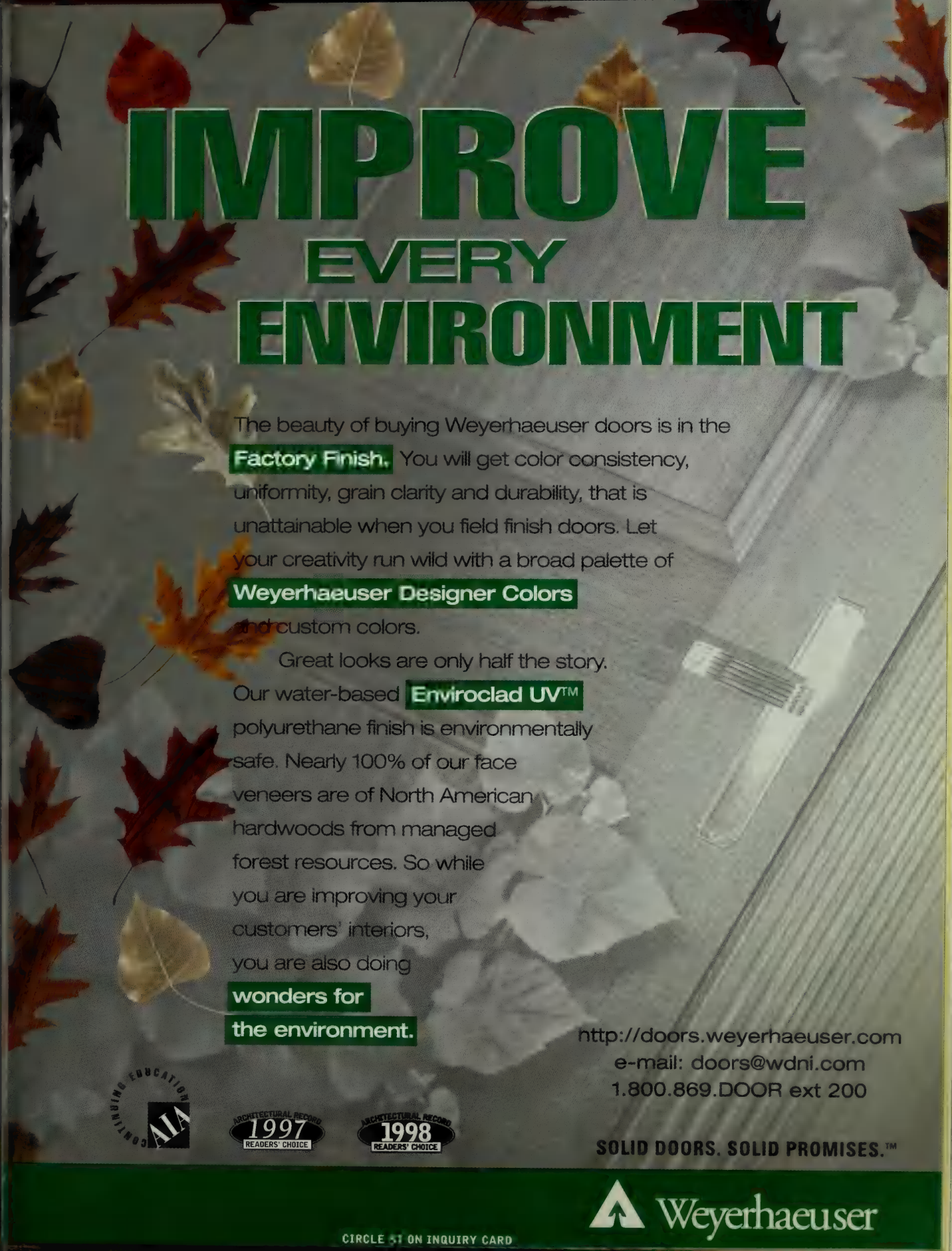
"There are a bunch of issues here that have yet to be resolved," says another industry consultant. "Problems will occur for architects who put a project out to bid without carefully specifying doors."

It will be incumbent upon architects to be aware of which codes they will be using in various parts of the country and even within a single state where codes may vary. They will have to be aware that, at least for the short term, the list of possible door and hardware suppliers may be limited. And in the absence of uniform labeling of positive-pressure doors, it would be prudent to leave certifications and installation instructions posted for the review of code officials, who also are bound to be uncertain about the new products and their ability to meet the demands of the new codes.

FIRE DOORS VERSUS SPRINKLER SYSTEMS

Few issues facing architects are as thorny as that of fire protection. The designer who raises the question of sprinklers versus passive life safety systems should be prepared for a long afternoon of debate. With the impending release of the International Building Code (IBC), which is expected to supplant the three existing U.S. model codes, the debate has become even more heated.

Increasingly over the past decade U.S. model codes have permitted the substitution of fire sprinkler systems for fire resistive barriers, compartmentation of high-rise structures or the installation of fire-rated doors and walls. The amalgam IBC, a final hearing on which is scheduled in March (publication is scheduled for spring 2000), is likely to treat trade-offs even more permissively


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say some industry sources.

Ask the National Fire Sprinkler Association (NSFA), and you will be told that fire doors are unreliable, that passive systems are, in the long run more expensive, and that sprinkler systems can be relied on to limit fire damage to small areas of sprinklered buildings.

Ask the Window and Door Manufacturers Association. You will be told that sprinkler trade-offs are fine if sprinkler systems work, but sometimes they don't.

The Portland Cement Association (PCA) makes a compelling argument that large losses have occurred in completely sprinklered facilities because other code-mandated fire protection features (such as fire barriers or area separation walls) have been omitted because sprinklers were installed.

Mark Kluver, manager of regional code services for the PCA in San Ramon, Calif., argues that a consequence of larger allowable floor areas (appreciably greater than any of the three model codes) in the IBC in buildings without fire-resistance-rated construction will be larger fires and higher fire losses.

Kluver argues for redundancy. "An example," he says, "is the combination of compartmentation provided by four-hour fire walls and automatic sprinklers. Requiring two or more types of fire protection provides a safety net, should one of the fire protection features be compromised or fail to operate.

"The concept of redundancy is undermined," says Kluver, "when fire resistant barriers are permitted to be reduced or eliminated where automatic sprinklers are provided."

The alliance for Smoke & Fire Control Containment (ASFCC) supports a "balanced design" approach to fire protection. A balanced design incorporates into the total fire protection package the essential complimentary fire protection features to support suppression, such as fire doors, walls and ceiling assemblies, fire-rated doors and curtains, fire-rated glass openings, protection of joints and penetrations, structural fire protection, smoke and heat vents, fire and smoke dampers and similar passive, containment features.

Passive features have been improperly referred to as redundant, which implies duplication resulting in overprotection. It is the position of the alliance that the two systems are interdependent and corresponding. The combination of both active and passive fire protection provides a more acceptable fire safety environment than either one alone. This design provides a safer egress system, greater firefighter safety and a reduction in property damage in the event of a fire where the sprinkler system fails to activate, or is overwhelmed by fire.

The life safety code of the National Fire Protection Association (NFPA) encourages sprinkler trade-offs in some cases. It allows, for instance, a reduction in the fire resistance rating of corridor barriers in the presence of sprinklers.

"We will continue to recognize those kinds of trade-offs," says Jim Lake, an NFPA senior fire protection specialist. "Sprinklers retard fire growth. They have shown themselves to be an extremely good fire protection tool."

Having said that, however, Lake says the NFPA endorses redundancy "to the extent that the goals of the life safety code are being met without undue hardship on owners or designers."

"The NFPA endorses redundancy up to the point where that balance is threatened," says Lake.

"The architect has a difficult job," says Dick Davis, senior engineering specialist for Factory Mutual Research Corp., a fire prevention consultant to half the Fortune 500. "In this context, he is trying to deal with both structural and fire protection issues, and it is the rare individual who has a handle on both those subjects."

From a fire protection standpoint, says Davis, "rarely anything goes up that, to my mind, is flawless."

The vast majority of problems and the vast majority of construction-related losses are roof-related, says Davis. Most are wind related, but frequently are a result of fire. A common failing among designers, he says, is in materials specification: understanding what is combustible, what is not, and being aware of new materials and new technologies that can reduce the risk of fire.

"There has always been a debate," says Larry Larson, a 30-year fire marshall, now West Coast regional manager for the NFSA. "Fire door people are interested in maintaining fire door separations. The sprinkler industry is interested in maintaining its status as a first-protection source. My problem was that fire doors were often propped open or controls overridden. Astragals were such a maintenance problem, I had crews working on them constantly."

"In the case of both the One Meridian Plaza fire in Philadelphia and the First Interstate Bank Fire in L.A., the predictions were that fire-resistant construction would contain fires. But there is always something that happens: people come in and tear out walls, protection systems are compromised to install new phone lines. If you have an hour-and-a-half-rated door assembly that theoretically will protect you from fire, you may still have smoke passing through the mullions. That's another problem with relying solely on fire-ratings and not on active fire protection."

Sprinkler systems can be compromised by overtaxed water supplies or broken piping, says Davis. Fire barriers are aids, not last defenses. "Say you've got a steel-framed warehouse with no fire-proofing. Steel won't burn, but it will weaken and collapse. If you have a firewall tied to an unprotected steel wall, it will fracture and no longer be effective as a firewall. In that case, fire walls must be designed so that framing on the fire side is separate so the wall will continue to stand. Barrier walls will help prevent the passage of hot gases or flames, but in the event of a major fire they are ineffective alone."

In the wake of New York's recent fatal fire in the 51-story South Park Towers, John Viniello, NFSA president said the city's fire codes "are written in blood." He accused New York City officials of "permitting the building of ovens in the sky."

"What I say to architects and builders is this," says Viniello: "It is not a question of whether sprinklers work. The question is how much they cost. Let's put our heads together and figure a way to reduce the cost."

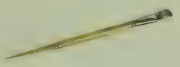
Viniello is urging the use of low interest rate loans to retrofit existing buildings or tax exemptions for structures protected by sprinklers.

Mike Lavalee is chief building inspector for Daly City, Calif., and chairman of the code review committee of the Peninsula Chapter of the International Conference of Building Officials. The revisions to the IBC he and other chapter members have recommended fill hundreds of pages. "The first draft of the IBC reduced occupancy separations, increased heights and areas and allowed sprinkler trade-offs for various reasons," he says. ""Any and all of these combinations will result in unsafe buildings."

He accuses the IBC framers of adhering to the lowest common denominators among the three U.S. existing codes, and says, "whether that is prudent, only time will tell."

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SPECIFYING FIRE DOORS AND WINDOWS

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Learning Objectives

After reading *Specifying Fire Doors and Windows* and completing the exercises, you will be able to:

1. Discuss the debate over passive versus active fire protection systems.
2. Describe the consequences of the new UBC code adoption requiring positive-pressure fire door testing.
3. Compare the existing fire-door testing to the positive pressure fire-door testing.

Instructions

The proceeding article *Specifying Fire Doors & Windows*, provided by the Window and Door Manufacturers Asociation, is part of the AIA/Architectural Record Continuing Education Series. You can receive two continuing education learning units that qualify for health, safety and welfare credits by reading the article, studying the learning objectives and answering the questions below. Turn the page upside down to check your answers. Then return the self report form (page 216) and submit it or use the Continuing Education self report form on Record's website, www.architecturalrecord.com.

QUESTIONS

1. What has been the result of codes requiring positive-pressure testing of fire doors?

Answer

2. What are some of the common problems of passive and active fire protection systems in buildings?

Answer

3. What is the recommended way to reduce the damage from fires?

Answer

4. What is the difference between the existing fire door testing and positive-pressure fire door testing?

Answer

ANSWERS

1. The results have been that code officials have rejected some doors, which necessitates change orders or arbitration. Fire-rated doors could require some form of intumescent, which will increase the cost of positive-pressure fire doors. Higher-rated fire doors may require modifications to the stiles and rails, cores or locks and latches specifying more stringent materials. Architects will have to re-educate themselves and be careful in specifying doors to be aware of where codes may vary.
2. A common problem is in the use of combustible materials (although some combustible materials may be tested and approved for fire doors). Other problems are that fire doors may be propped open or controls overridden by occupants of the building. Sprinklers may not work due to low water pressure or broken pipes. Firewalls may be compromised through installation of wiring or modifications of existing walls. If structural steel isn't protected from heat, it can collapse. Also, even if a barrier wall remains intact, smoke may pass through.
3. This article recommends redundancy of fire protection, or installing two or more types of fire protection systems, both active and passive. Sprinklers that are activated at the start of a fire work best when the passive systems are already in place. Fire barrier walls and use of non-combustible materials are passive ways to prevent a fire from spreading.
4. Historically, fire doors have been tested under neutral-or-negative-pressure conditions. For testing purposes, the neutral pressure plane has been assumed to be near the top of the opening. Under positive-pressure testing, the neutral pressure plane is pushed downward to a height of 40 inches above the sill of the opening in order to increase pressure on the upper two-thirds of the opening.

For more information, contact:

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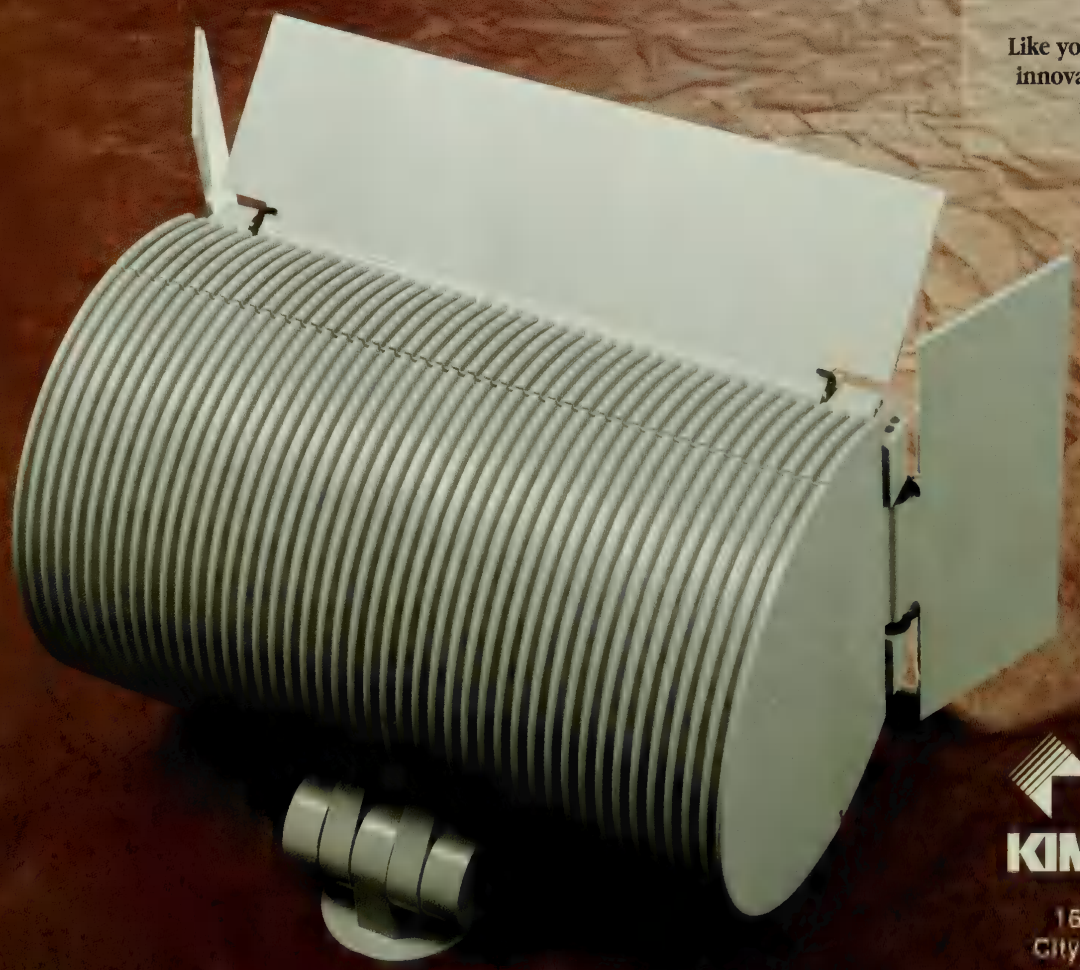
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LIGHTING...

ighting specifications are among the hardest to write, and it is always disappointing to e equipment not recommended by a designer actually installed on a project. The quality a project depends on its specs: a downlight can be as simple as a metal cylinder that sembles a gallon paint can, outfitted with a plastic cone and socket sold at the local home nter for $19.95, or as sophisticated as a made-to-order unit with an insulation-contact-ted enclosure, a focusable, handcrafted reflector system of anodized alloy, an engineered ns, and an electronic ballast. The latter fixture might cost 30 times as much as the former. ut are there are other significant differences? You bet there are. In this lighting section, nsultant James R. Benya gives readers his advice on how to hold to firm lighting specs, d he reiterates the best reason for doing so: no matter who might mess up a project, it is ltimately the designer's reputation that is on the line.

The Soaring Eagle Hotel (1), by Gary Steffy Lighting Design, and DreamWorks ecords (2), by Gotham Power and Light, are examples of what can be accomplished when p-quality equipment is specified and installed on a project. "The client considered the ghting of the project to be of extreme importance," says Gary Steffy, "and wanted us to ecify the best equipment. It is a joy to see what is possible when an architect and a light-g designer are offered this freedom."

When a job is done on a low budget, however, such as Ten9Fifty (3) by Horten • es Lighting Design, ingenuity may substitute for expensive fixtures. Jules Horten confides at this alchemic ability is one of the great talents of Teal Brogden, who designed this proj-t for Horten • Lees. "She can take an absolutely invisible budget and make something onderful out of it," he says. When you look at the lighting of this speculative office com-ex, it becomes clear that the designer's skill is in knowing where to aim the light her client n afford so that it does as much as it possibly can. —Charles Linn, AIA

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CREATIVE USES

RESPONDING TO THE HUMAN TOUCH, A GARAGE BECOMES A MUSIC BOX



Above-ground parking garages are often skeletal structures, devoid of everything except the elements that their builders consider strictly functional. Cars don't get cold, New York City parking garage magnate Abe Hirschfeld once said, so why do their storage facilities need facades? A new, 10-level, 1,600-space parking structure in uptown Charlotte, North Carolina, however, does significantly more than efficiently store cars. It also functions as an urban-scale music box, responding to the human touch with changing patterns of sound and light.

This artistic component of a utilitarian garage is the work of Massachusetts-based artist Christopher Janney, well known for interactive work that combines music, architecture, and light (see sidebar). Bank of America, the owner of the garage, hired Janney because it wants to make this area of Charlotte a better place to be after dark, and hopes the friendlier garage will enhance retail opportunities in a neighborhood already inhabited by many of the city's cultural institutions.

Mere add-ons—such as the giant renderings of fruit that decorated the 36 facade panels in the original scheme, before Janney's intervention—wouldn't do. Janney insisted on transforming the nature and the function of the whole garage. The result is a work, which he calls "Touch My Building," that is integrated into the structure of the building.

First, Janney embedded 416 aluminum panels, each five feet long and 18 inches wide, in the 47-by-10-foot facade panels. Semi-transparent car paint—in colors like Gypsy Lavender, Luscious Green, and Trudy Blue—coats the small aluminum panels, which are arranged in a more or less spectral order around the perimeter of the garage. The progression of color is not completely ordered—a group of reds, for instance, may be interrupted by a green panel. Janney describes this jagged pattern as rhythmic, like an improvisational line of music.

Then, Janney integrated light. At night, 72 HID lamps wash the array of aluminum panels, which glint like car hoods. The real show, however, goes on at ground level at any hour of the day. Thirty-foot-tall glass fins in five shades of red fill the spaces between the large facade panels. The red fins progress from light pink to plum around the perimeter of the structure. Behind each fin are double bars of ruby-red neon tubing, powered by 9,000-volt transformers. Passersby touch a four-foot-high plate below each fin, triggering its capacitance field. This fires the neon and initiates a short concert of programmed sounds, such as a bamboo flute or a steam whistle. The sounds also chime together on the hour.

More colored glass completes the exterior work. Holes punched in the cornice are backed by yellow glass, and both stairwells are edged in shades of blue glass.

A plaque inscribed with a riddle is hidden inside the garage. The solution requires that the outside plates be touched in a certain order. When someone solves the riddle—and only eight people have done so since the November opening of the garage—the giant music box explodes into a concert of neon, flashing light, and music. Janney keeps track of the number of successful problem solvers. When the number reaches 50, he will change the riddle, and the nature of the garage will change once more. *David Simon Morton*



PERFORMANCE ARCHITECTURE **Christopher Janney calls himself a sound artist. He is, after all, an accomplished jazz percussionist, and he also creates interactive works of public art. But if he is a self-proclaimed sound artist, Janney explains, it's because he believes color, light, and movement all fall under the category of sound. What is the sound of this light? he often asks, or, What is the color of this sound? Asked to describe the arrangement of colored panels used in "Touch My Building," he scatted rather than spoke.**

"I like to give new spirit to places that already are lively," Janney says. Earlier in his career, he installed custom-made electronic instruments called Soundstairs on prominent stairways in several cities, including Rome's Spanish Steps. Movement on each step triggered a different ambient sound, like birds chirping or a light breeze. The sound for each step changed after playing. For "REACH–New York," Janney installed a similar instrument underground on a subway platform in New York City's Herald Square. Waiting passengers can reach up into the air to trip photoelectric cells and hear a corresponding ambient sound. Trains coming into the station trip the sensors in rapid succession, creating a different musical salute each time.

The use of light came much later to Janney's repertoire. It can be largely attributed to the introduction of Monsanto Opti-Color glass in recent years, as Janney can now use large sheets of glass in up to 250 colors—before, his palette was limited to eight colors. He incorporated large doses of colored glass into "Touch My Building" and in the 180-foot-long harmonic runway he installed at Miami International Airport. Janney's work comes closest to the conventional notion of architecture in this kind of work, but in all his projects, Janney is a shaper of space. It's just that sometimes the materials he uses are invisible. *D.S.M.*



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LAT WALLWASHING LETS GALLERY-GOERS SEE ART IN AN EVEN LIGHT

nen Carla Massoni saw the burned-t brownstone on the Chestertown, aryland, waterfront, she knew she d found the perfect spot for her w gallery. Chestertown is a his-ic town located at the confluence three rivers, two hours north-st of Washington, D.C. The pic-esque little town has, over the ars, turned into an affluent resort.

Massoni, who had owned a llery before, already knew that nting is the key to good gallery sign. "It can make or break a llery," she says. So she called lighting designers SM Lighting sign as soon as she had decided the space.

"She wanted a simple, easy-maintain space within a limited dget," says Charles Starner of e New York–based SM Lighting sign. He decided to divide the 500-square-foot gallery into two ually separate areas. In the front, e beams and ducts are exposed, d the lighting track is pendant-ounted to create a dramatic entry. the back, a dropped ceiling cre-ates a more finished area. The gallery, which shows an eclectic mix of modern art and sculpture, was well suited to this demarcation, since it would allow different kinds of art to be shown at the same time in the small space.

The basic concept behind the lighting of the gallery is the use of an even wash of light on all perimeter walls. In her earlier gallery, Massoni had used MR16 lamps as spots. She found them expensive to maintain and difficult to focus. The lighting designers tried another approach. "A flat wash of light makes the lighting secondary, in a way. You see the painting without the scallops and shadows created by the spots," says George Merich of SM Lighting Design.

"The flat wash may not be as dramatic as using the low-voltage spots, but it works for me," says Massoni. "First, I do not want to spend my time climbing tall ladders to change lamps. More important, in my previous gallery, I found that clients would look at the art and say, 'That looks great here, but my home is not lit like this.' It is easy for them to replicate the flat wash."

In the front, track-mounted halogen 100W PAR38 lamps with a wallwasher assembly kick the light to the wall to create a flat, even wash. The lamps are placed on dimmers for longer life. In the back, where the ceiling is lower, 100W semirecessed T4 halogens again create the same effect.

Lighting for specific pieces is achieved with the use of monopoints. Conduit was recessed into either side of the beams and outlets were placed at equal intervals, so Massoni can plug in 50W PAR30 halogen floods angled wherever they are needed. In the back, the lower ceiling called for a wiring grid with almost invisible white round ceiling-mounted plates into which the same lamps can be plugged.

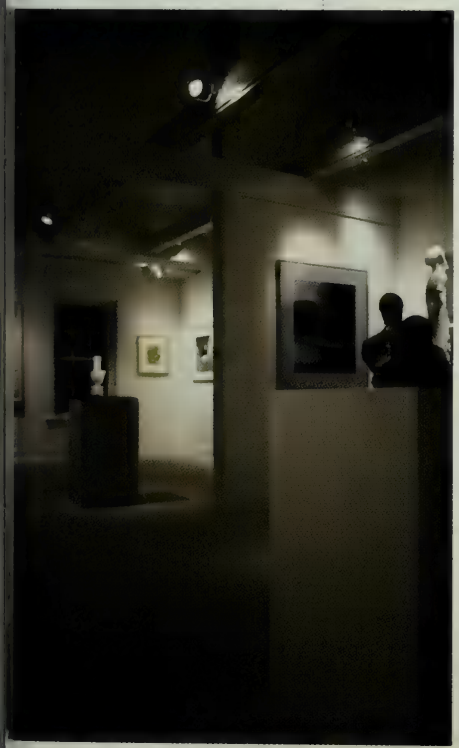
The carefully thought-out plan ran into a hitch at the last minute when Massoni told the lighting designers that she had reconsidered her decision to expose all of the ductwork and lighting hardware in the front of the gallery. She was now planning to build a gypsum-board soffit around the ducts and wanted the lighting to be hidden as well. Track lighting had already been ordered for the area, so to keep the project on time and on budget, the lighting designers integrated a channel into the soffit in which to hide the tracks.

"It all worked out quite well in the end," says Merich. "The entire space has only three different types of light bulbs, and with equipment and installation, it cost less than $7,000." *Nayana Currimbhoy*





Monopoints can be plugged in along the beams wherever they are needed (top). A channel in a ductwork soffit hides track lights (above).





The perimeter walls of the 1,500-square-foot gallery are lit with halogen PAR38 lamps fitted with a wallwasher assembly that kicks the light to the wall. The art is displayed in an even light, without the distraction of harsh scallops and shadows. "It may be less dramatic than using MR16 spotlighting," says lighting designer George Merich, "but it is more true to the art. The lighting becomes secondary—it just disappears."

SPECIAL LIGHTING MEETS SPECIAL NEEDS OF EXOTIC SEA CREATURES

How do you help a crocodile digest its food? How do you protect a sea dragon from an exit light? How blue must a blue light be to keep an Australian jellyfish alive?

At the Coastal Rhythms exhibit at the New England Aquarium in Boston, the soft glow, the shimmering vista, defined shadows, and other such staples from a lighting designer's repertoire were definitely secondary considerations. The designer's primary task on this novel job was to help create a livable lighting environment for such exotic creatures as Japanese spider crabs, Australian sea jellies, salt water crocodiles from India, sea dragons, and other creatures that inhabit the world's fragile coastal regions.

"Coastal Rhythms: Creatures on the Edge" is a temporary exhibit that opened in conjunction with the aquarium's new west wing last year. The $20 million 17,000-square-foot addition is the first step in the aquarium's planned $100 million transformation. Designed by Schwartz/Silver Architects of Boston, the west wing's undulating stainless-steel roof is designed to evoke the shimmering gills of a fish. The new wing, as well as its opening exhibit, reflects the ways in which the world-famous aquarium's curators have reexamined its programs.





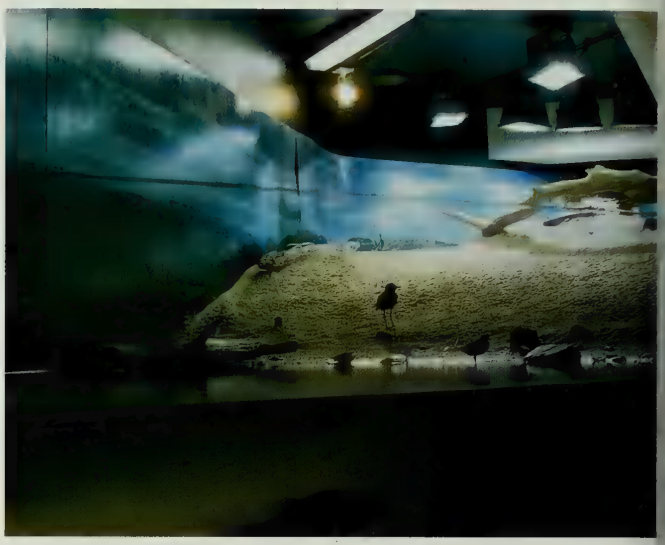
The sea dragon requires a lighting level that is high but does not overheat the water.

Discarding the "bigger is better" model of the past, the aquarium is moving toward less grandiose displays. "The purpose of our new exhibits such as 'Coastal Rhythms' is not only to entertain but also to educate the public about the fragile marine environment," says Steven Bailey, curator of fishes for the museum.

Accordingly, the 7,000-square-foot coastal exhibit has smaller, more concentrated environments. The lighting designer was Josh Feinstein of the Lighting Design Group, a division of Standard Electric Supply Company.

Feinstein's primary considerations were lighting intensity, color temperature, and the adapting fixtures within the exhibit tanks. The entire exhibit works primarily with two lighting types: fluorescent and metal halide. Fluorescent is important because it comes closest to full-spectrum lighting, thus providing the ultraviolet rays required by creatures for metabolizing food. Metal halide is suitable because it penetrates water very well and simulates the ripple effect of sunlight passing through water. Its superior color rendition also works well for viewing the creatures.

Within this broad framework, however, each animal requires an independently structured environment that simulates its own habitat. The crocodiles, which can grow up to 24 feet long, need the intense heat and the flat light of the mangrove swamp. Three heat lamps, two 175W metal-halide downlights, and three four-foot 5,000K T8 fluorescent lamps housed in vapor-proof fixtures provide the mid-afternoon hazy heat that is optimal for the crocodiles' functioning. Since the animals need to drop their body temperatures when they sleep, the lighting is computer-controlled to build up to a crescendo in mid-afternoon and stagger down to nighttime lows.





Fluorescent lamps are used to supply the ultraviolet light needed for photosynthesis, while metal-halide lamps are used to simulate sunlight

The delicate, plantlike sea dragons, which come from off the southern coast of Australia, need to be maintained in a well-lighted environment whose temperature does not rise above 58° F. To achieve this effect, light fixtures had to be arranged so that they would not dump heat into the tank. Installed in a two-foot ventilated soffit placed above the tank, 5,000K fluorescent T8 lamps as well as 6,500K 250W metal-halide lamps provide the necessary lighting. Because the beautiful six-inch sea dragons are attracted to light, says Bailey, even an exit light glowing at night at the other end of the room could lead the creatures to attach themselves to the edge of the tank. To prevent this from happening, the sea dragon tank is equipped with a 9W compact fluorescent night light; the light has its own self-recharging battery to ensure against a power failure.

Sea jellies, which also come from the southern coast of Australia, presented another challenge. They are the only animals in the world that photosynthesize their own food and they need the same color of light found in their native environment to do so. The tank is equipped with a 20,000K metal-halide lamp, the bluest light available, to re-create the sea jellies' natural habitat as closely as possible.

This was the first time Bailey had a lighting designer on board. Changing exhibits can be stressful, Bailey says, and having a lighting expert work with him was extremely helpful. For Feinstein, the job was a tremendous learning experience. "I would say it was more a research job than a design job," the lighting designer says. *N.C.*

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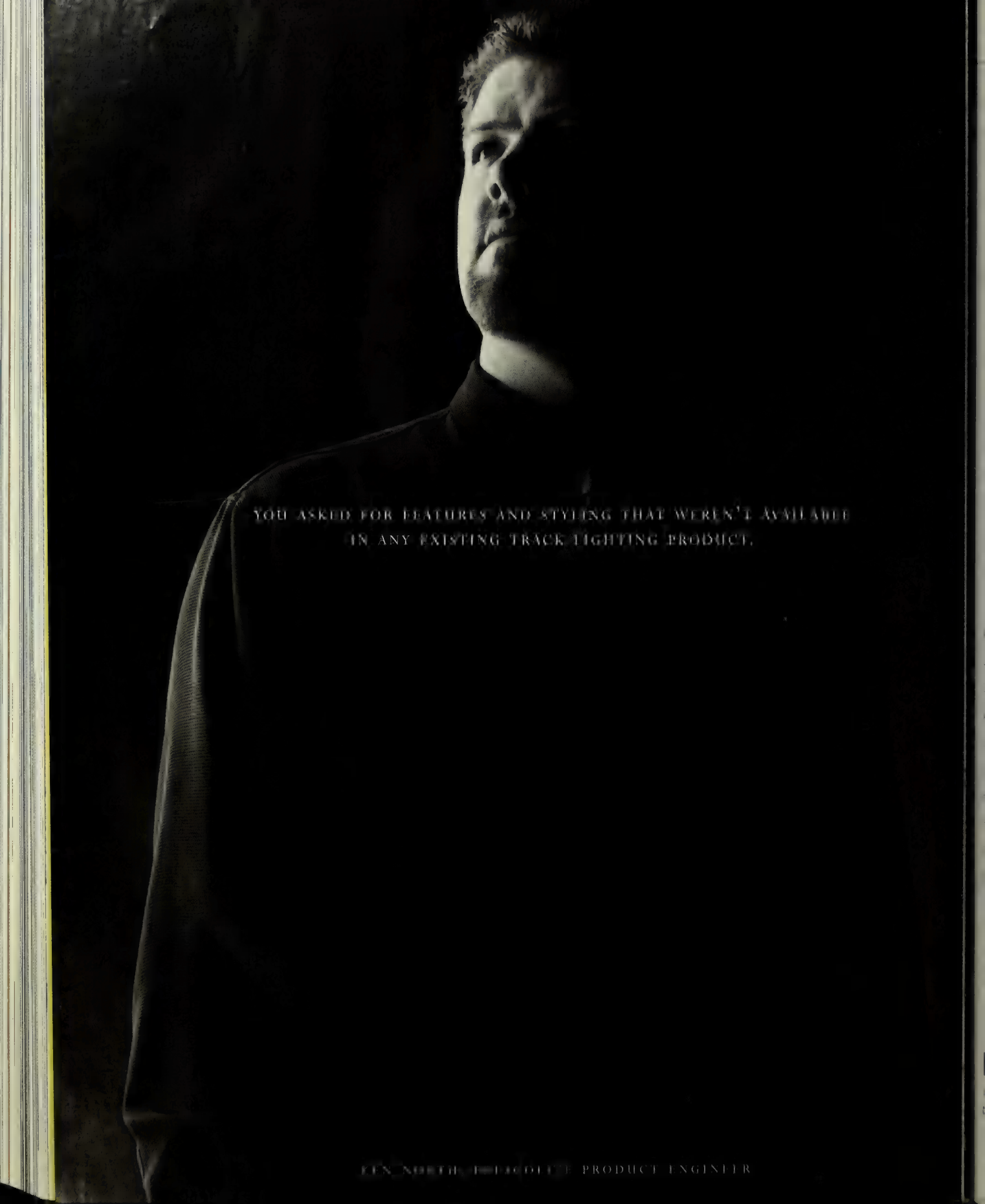
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A Renovated Warehouse Provides a Fresh Spin for a Record Company

by William Weathersby, Jr.



In Los Angeles, epicenter of the entertainment world, few new enterprises have been as closely scrutinized as DreamWorks SKG. Steven Spielberg, Jeffrey Katzenberg, and David Geffen's multimedia start-up quickly established itself as a major player in television, film, animation, and music production. DreamWorks Records, the music division, has staked out its own territory with offbeat offices carved from a turn-of-the-century warehouse that until recently housed part of the Beverly Hills Public Works Department. The new tenant was attracted to its rustic details, including exposed brick walls and vaulted oak ceilings.

Tailoring the space for the record company's needs posed several challenges for Errico/Thompson, the architecture and interior design firm. With a bow-truss ceiling that ranges in height from 16 to 21 feet, the structure "was essentially a cavernous tunnel that required both acoustical and aesthetic problem-solving," says design principal Claire Thompson. "The client wanted to retain the feeling of a big open space, but also required sound-isolated private offices and conference rooms with a mor intimate feel. We decided to modulate the scale by layering the space wit a series of interior architectural elements built around a village plan."

The deftly layered lighting system for DreamWorks was a colla boration between Errico/Thompson and Los Angeles–based consultan Gotham Light & Power. "To create visual interest and to avoid a cavelik appearance, the lighting required a multilayered approach," says principa lighting designer Celeste Gainey. "The challenge was to illuminate multi ple visual planes—from the upper ceiling to the task level and all the wa down to the pathways—while still meeting California's stringent Title 2 energy code. The only way we were able to meet the requirement was t use very energy-efficient sources such as fluorescent and metal halide

Lighting multiple planes

To uplight the ceiling plane within the open office areas, custom meta scoops were placed in each truss bay to hold flood fixtures using energy efficient 100W ceramic metal-halide lamps. The lamps, with a colo rendering index of 85, streak the wood ceiling with a warm glo Theatrical fixtures fitted with PAR lamps are mounted atop rafte throughout the space to illuminate dark pockets.

At mid-level in the open-plan areas, the concept of a stree lamppost was incorporated into the design of custom workstations t provide both task and ambient illumination. A fluorescent beacon si atop each post, while two fluorescent arms are hung from cables paralle to the structural cables that tie the trusses together above. "We didn't wan a lot of fixtures to obscure the beautiful ceiling, so we found a way to inte grate the lighting into each desk unit," Gainey says. "Each workstatio functions like an individual building in a village." Fluorescent pathwa luminaires, wall-recessed close to the floor, light the corridors leading t the private offices and serve as egress lights.

In the private offices, custom light grids fitted with adjustabl PAR track fixtures accommodate flexible lighting plans, showing the wid range of furnishings—from mid-century modern to antiques fro India—to best advantage. The exposed oak ceilings are accented with 70W ceramic metal-halide spotlights mounted on pipes along the perimeter.

The main conference/listening room features studio-qualit acoustics, sophisticated video screening and communications capabilitie

Project: *DreamWorks Records, Beverly Hills, California*
Interior architecture: *Errico/Thompson—Claire S. Thompson, Laura L. Errico, principals; Randy Stauffer, Leila Abdul-Rahim, Andrea Devitt, Annilee Vita, Gary Tasich, design team; Demetrio Cuzzocrea, project administration*
Lighting designer: *Gotham Light & Power Co.—Celeste Gainey, principal; Mark Figueredo, Fernando Bracer, design team*

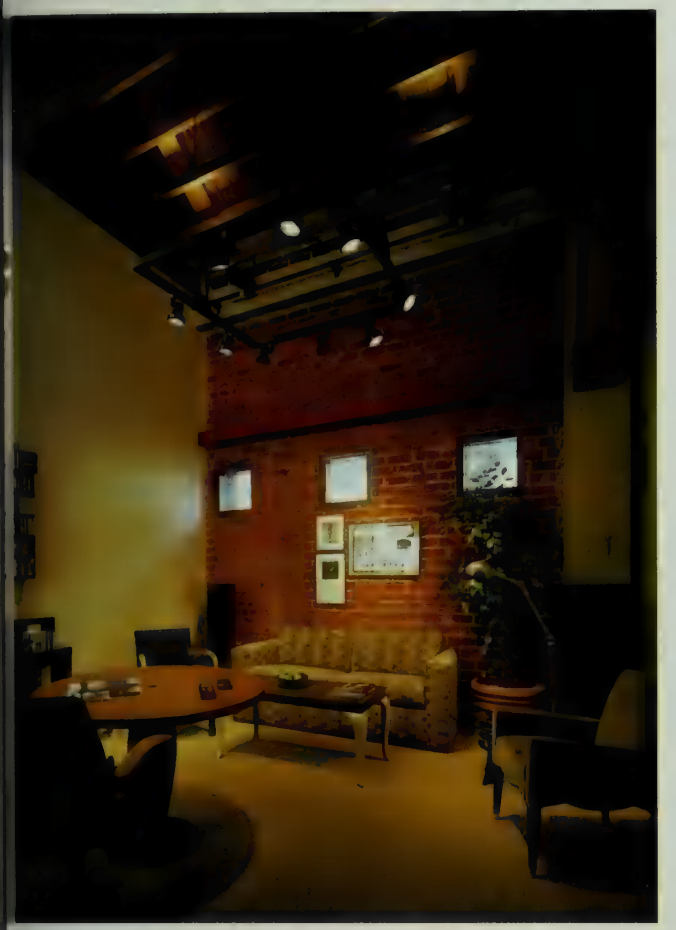
William Weathersby Jr. is a freelance writer based in Westport, Connecticut. He has written about lighting, interior design, and architecture for many publications.





Vibrant blown-glass chandeliers punctuate the lobby (opposite), and layered lighting creates visual interest at key vertical levels (above). Wall-mounted torchères and skylights enhance seating areas (left).

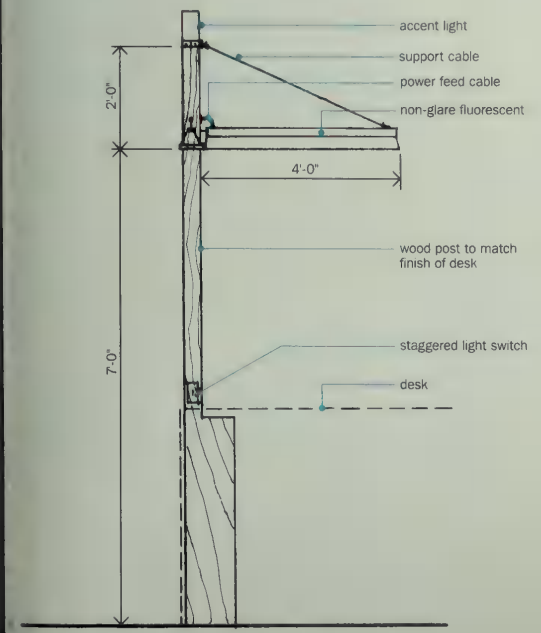








Fluorescent beacons and cable-hung arms at workstations create both task and ambient illumination (opposite). Track lights augmented with ceramic metal halides light an office ceiling (far left). In the conference room, lighting dims to suit the mood (above and left).



DETAIL OF DESK LIGHTING

and residential-style furnishings that can be easily rearranged to support varied functions. Here dimmable biaxial fluorescents provide ambient illumination behind a wood trellis ceiling grid. "Because the room is used for teleconferencing, we designed a cut-off visor to eliminate any hint of shadowing or feathering that might occur along the walls," Gainey says. Cables supporting MR16 lamps increase light levels when required, while custom torchères add ambient illumination.

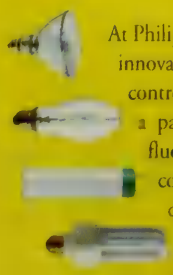
Colorful blown-glass chandeliers designed by artisan Michael McEwen reduce the scale of the large lobby reception area. In other lounge seating locations, McEwen's quirky luminaires, constructed from found objects such as lengths of ball-chain and 1950s shades, offer ambient light as well as lighthearted charm.

To keep track of so many layers of lighting, Gainey provided the electrical contractor with three reflected ceiling plans to represent different heights in the space. "It proved to be the best way to map the idiosyncratic nature of this atypical office environment," she says. ■

Sources

Accent lighting: *LSI*
Custom chandeliers and torchères: *Michael McEwen Lighting Studio*
Custom metal fabrication: *Art Metal*
Post-mounted luminaires at workstations: *Zumtobel Staff, Farrow Products*
Track lighting: *Halo*
Indirect metal halides: *Hydrel*
Indirect fluorescents: *Elliptipar*
Decorative pendants: *Luceplan*
Downlights: *CSL, Delray*
Task lamps: *Baldinger*
Dimming system: *Lutron*





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Soaring Eagle Hotel Takes Flight with Textured, Colorful Illumination

by William Weathersby Jr.

The Soaring Eagle Hotel in Mount Pleasant, Michigan, is one of a growing number of new commercial hotels and casinos operated by Native American communities. Built by the Saginaw Chippewa Indian Tribe in the middle of the state's lower peninsula, the resort made its debut with a freestanding gaming venue in 1996. Following an established master plan, the owners launched a second-phase expansion to add new wings for guest rooms and a conference center. After the phase-two structural shell was complete, Dow Howell Gilmore Associates was hired to complete the building.

"We were charged with defining the visual concepts and interior architecture," says principal-in-charge Donald Koster, AIA. "The client wanted high-quality finishes and detailing to reflect the tribe's cultural heritage and to showcase regional materials." The programming of the facility—encompassing 512 hotel rooms, an indoor pool, meeting and break-out rooms, an upscale restaurant, a cigar lounge, and a 1,200-person ballroom—was intended as a destination resort that would thrive independently of the casino. Gary Steffy Lighting Design was commissioned to design the exterior and interior illumination. "The architects developed a rich palette of natural materials such as granite, limestone, travertine, and cherry wood," says principal lighting designer Gary Steffy. "The lighting was to emphasize the textural quality of these elements."

Since Soaring Eagle is an around-the-clock operation, the design team emphasized efficiency. Softly illuminating painted ceiling coves in the lobby and corridors, for example, are cold cathode or fluorescent lamps with dimming ballasts or transformers. Efficient HIR (halogen infrared) and ceramic metal-halide lamps also provide precise and long-lasting color rendering levels throughout the facility.

Exterior lighting concepts

The mandate for the exterior lighting was to give the complex a strong nighttime presence. On the western facade, the seven-story central section and two five-story hotel wings form a horseshoe around a pond equipped with geyser fountains. To illuminate the water feature, Steffy situated 68 500W PAR56 quartz halogen uplights within the pond. The dimmable lamps in hues of red, green, blue, amber, and white are controlled by a sequencer set on a 90-minute cycle.

"To illuminate the facade, we accentuated specific features rather than creating a uniform wash," Steffy says. "We wanted to avoid blasting light through the guest room windows." The blue-green tones of clear mercury spotlights complement the verdigris of copper chimneys. Warm-tone ceramic metal halides uplight the piers at ground level, sections of faux stonework, and architectural detailing on the upper floors. "The newer ceramic metal-halide sources offer a very high CRI [color rendering index] of about 82, and eliminate any color-shift problem," Steffy notes. Exterior sconces fitted with compact fluorescents behind faux-stone acrylic lenses delineate the balconies of the hotel's suites.



Project: *Soaring Eagle Hotel and Conference Center, Mount Pleasant, Michigan*
Owner: *Saginaw Chippewa Indian Tribe of Michigan—Ron Jackson, project director; John Bliek, senior vice president of hospitality*
Architect and landscape architect: *Dow Howell Gilmore Associates—Donald Koster, AIA, principal-in-charge; Kevin Guigou, AIA, project manager; Robert Hill, AIA, design team leader*
Master plan and building structure architect: *Cunningham Hamilton Quiter Architects*
Interior designers: *Cyntheia Brege, Cath McGlynn*
Lighting designer: *Gary Steffy Lighting Design—Gary Steffy, principal; Gary Woodall*



The overall lighting approach "was to light up rather than down," says Steffy. "We specified uplighting to illuminate coved ceilings, copper chimneys, wood and stone walls, and architectural details including metalwork and moldings." The intent was to eliminate direct-source glare and impart an upscale ambience; subtle interior lighting augments the relaxed feeling of a lodge retreat, rather than suggesting an extension of the frenzied gaming areas.

THE OVERALL IDEA WAS TO LIGHT UPWARD RATHER THAN DOWNWARD, TO ELIMINATE DIRECT-SOURCE GLARE.

For public spaces including the lobby, restaurant, and ballroom, custom luminaires interpret traditional tribal motifs and materials. Sconces and chandeliers incorporate panels of translucent cowhide as well as horn and onyx simulated in acrylic. The design team consulted with members of the tribal Ziibiwing Cultural Society in order to integrate aspects of Native American culture and symbology within the lighting fixtures, complementing the original artwork on display.

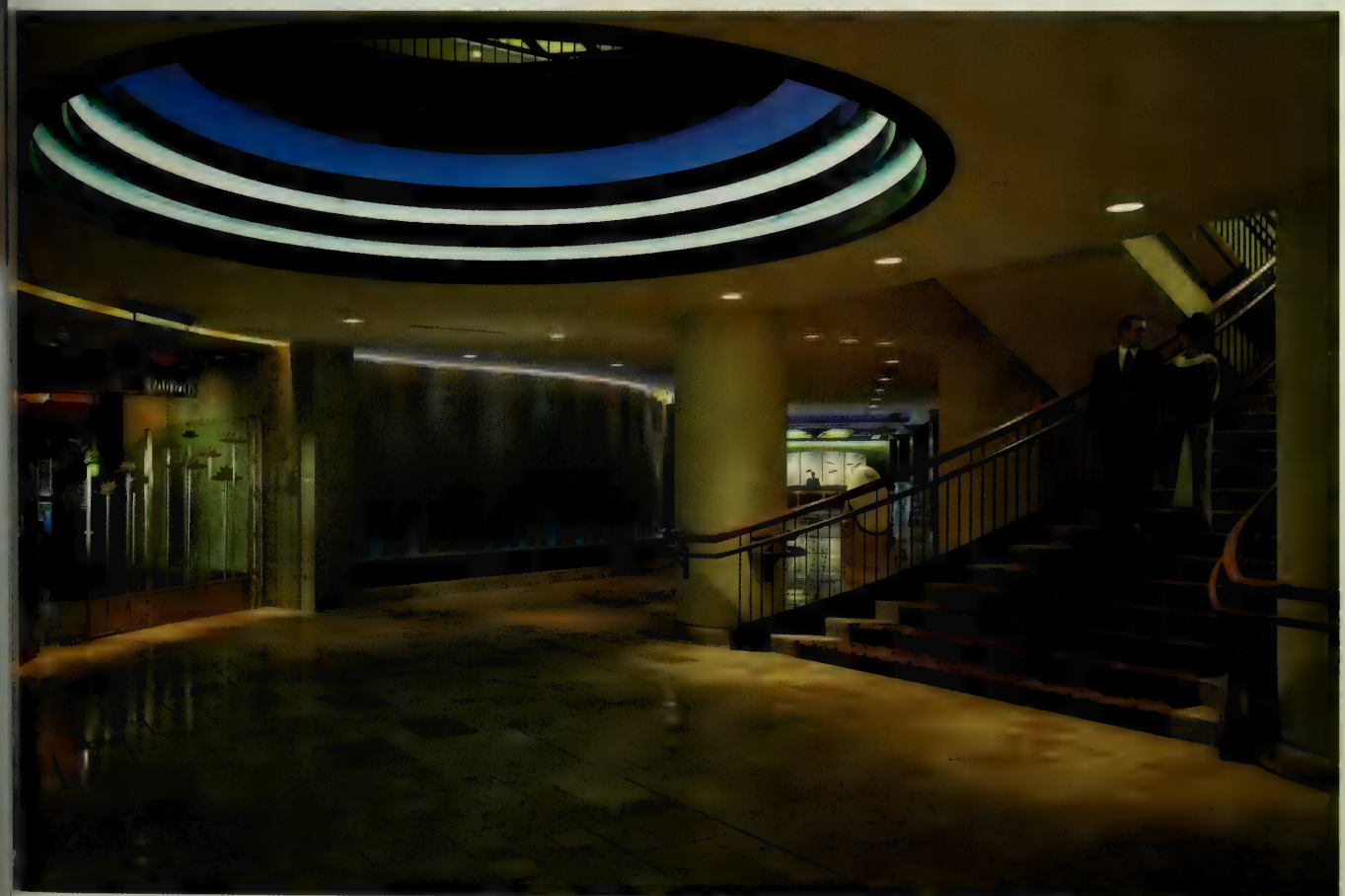
The design team also employed colored lighting in strategi spots to heighten visual interest. "The goal was to give patrons a slightl different perspective and a change of environment as they spend the da in the hotel," Koster says. Adds Steffy, "The client wanted to avoid th flashiness associated with Las Vegas casinos, so we didn't design spe tacular light shows. Color-changers are used sparingly and set on ver gradual cycles." A granite water wall adjacent to the restaurant entranc for example, features blue and white PAR38 uplights set within the foun tain. Mounted in a ceiling slot above, blue and amber PAR38s furthe spotlight the effect, running through eight scenes over a 24-hour perio

A signature look of the conference center was created in th reception and prefunction area leading to the main ballroom. Along th vaulted ceiling, Native American artists painted a mural of eagles soarin between the horizon lines of treetops. "Painted in soft sepia tones, th mural called for warm uplighting," Steffy says. The ceiling is even washed with asymmetric uplights set within valence-screened sid troughs and fitted with 50W, 3,000K compact fluorescents.





A ceiling mural is washed by uplight from 50W, 3,000K compact fluorescents mounted in side troughs (opposite). A valence equipped with T8 fluorescents masks HVAC ductwork circling the indoor pool (left). The ballroom showcases chandeliers based on a Chippewa star motif (above). Rings of cold cathode circle an oculus near a water wall spotlighted with PAR38 HIR lamps (below).







Multiscene fiber-optics spotlight a whirlpool bath in the presidential suite (above). Light from table lamps and torchères is augmented by downlights and wallwashers.

Steffy added cold cathode illumination at the bottom edges of the valences to create a soft line of downlight along the walls. Recessed PAR38 floods pick up the floor detailing, while a tabletop centerpiece is accented by PAR20 ceramic metal-halide spotlights. At each cherry wood archway, A-lamps set behind cowhide sconces create a warm glow. Inside the ballroom, which can be subdivided into three sections to accommodate groups of varying sizes, ceiling coves are lighted by fluorescent lamps in hues of amber, blue and white, set on dimmers and mounted above wood beams. The room's dramatic chandeliers interpret a Chippewa star motif, while tall linear sconces mounted on perimeter columns also incorporate tribal decorations. Additional downlighting is supplied by PAR38 HIR lamps recessed into ceiling beams.

DESIGNERS CONSULTED WITH A TRIBAL CULTURAL SOCIETY TO INTEGRATE NATIVE SYMBOLOGY IN THE LIGHTING.

Lighting for the indoor pool serves a dual purpose. Not wanting to mar the wood-framed cathedral ceiling, Koster collaborated with Steffy on the design of a lighting valence structure circling the pool that provides ambient lighting while masking mechanical systems. A run of T8 fluorescent striplights are set behind acrylic panels to approximate the look of natural horn. Mounted behind the valence, 250W metal halides uplight the ceiling. Sconces on each of the piers are outfitted with 50W biax fluorescents. An array of PAR38 metal-halide downlights mounted to the beamwork at the highest point of the ceiling form another layer of ambient illumination. Underwater fixtures within the pool are fitted with 500W quartz halogen lamps.

In the presidential suite, recessed MR16 downlights and wall washers are zoned and can be dimmed. General lighting is provided b table lamps and torchères housing halogen A-lamps. The lavish presi dential bath employs an MR16 downlight to spotlight the floor pattern i front of a whirlpool tub. Two 100W wallwashers graze the tile wall, whil a fiber-optic cove above the tub is equipped with a color wheel so guest can adjust the lighting scene. Lighting for the suite is controlled by a pre programmed, five-button keypad.

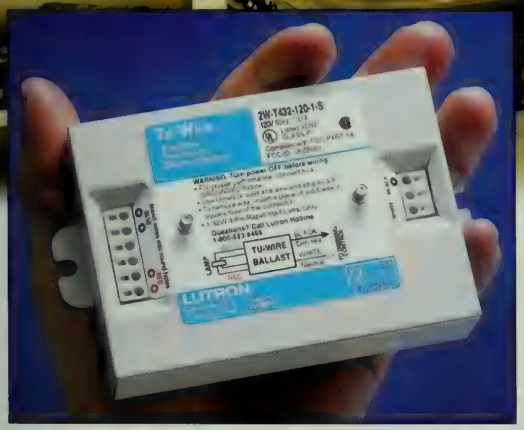
Steffy says completing the design of the already-in-progres expansion project represented a close collaboration with the architect CAD facilities were set up on site, with the design team spending thre days a week at the property. "There was a thoughtful, ongoing review c how lighting could work to complement the architecture," Steffy says. " we needed to refine a detail, we sat down and ironed it out." ■

Sources

Exterior sconces: *Visa with Sterling Products acrylic*
Exterior in-ground and fountain uplights, indoor pool lights: *Hydrel*
Lobby, corridor, and ballroom downlights: *Lightolier*
Lobby and corridor uplights: *Peerless*
Lobby sconces, pendants: *Baldinger with Taos Drum hide*
Ballroom sconces: *Sterner with Taos Drum hide*
Ballroom chandeliers: *Baldinger with Sterling Products acrylic*
Pool sconces, valence fixtures: *Sterner with Sterling Products acrylic, Legion striplights*
Presidential suite downlights: *Reggiani*
Presidential suite bathroom wallwashers: *Elliptipar*
Bathroom fiber-optics: *Lumenyte*
Lamps: *General Electric, Osram Sylvania, Philips*
Lighting controls: *Lutron*

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Appealing to a New Kind of Client Using Otherworldly Images

by Charles Linn, AIA

Two developers considering buying a pair of vacated buildings in Culver City, California, approached Steven Ehrlich, FAIA, and Nick Seierup, AIA, f Steven Ehrlich Architects to see if the struc- ures would fit their needs. They wanted to reate a campus that would attract young ntrepreneurs in the entertainment business ooking for an alternative kind of office space. heir target market was people working at the utting edge of digital production technology, eople who were successful and serious but ho also might show up for work on mountain ikes or skateboards with their dogs in tow—in ther words, tenants who were not likely to ase space in a typical office park. After the chitects did conceptual studies and the devel- pers ran the numbers, the buildings were urchased, gutted, and construction began on ie complex, called Ten9Fifty.



Low-voltage lights are projected across the driveway to uplight a row of otherworldly trees. Compact fluorescents backlight a fiberglass canopy, and in-ground metal-halides silhouette small plants.

The two buildings were very differ- nt—the one-story concrete block warehouse n the east half of the property dated back to ie 1950s, while a three-story concrete office uilding across the driveway was from the mid- 970s. "The office building's generic image and ie existing landscaping were exactly what we idn't want to offer from an architectural or a narketing standpoint," says partner-in-charge ierup. "So we took a very anticorporate pproach to the architecture." This involved redefining the space etween the buildings and using a varied palette of materials: deep purple ucco to coat exterior walls, galvanized metal panels at entrances, and rrugated metal for a prefabricated soundstage that was inserted inside section of the former warehouse building.

Horten • Lees Lighting Design helped knit this anticorporate nage together by developing a lighting vocabulary using inexpensive fix- ires. Principal-in-charge E. Teal Brogden notes, "The job was fast-track, nd the developers were very interested in rolling up their sleeves and get- ng involved in the job. We'd make a suggestion about how a standard xture might be modified, and the next day the developers would show p on the job with a sample, and we'd try it out."

To create a stronger, campuslike relationship between the build- gs, the team landscaped the driveway that separated them, adding new camores to existing ones and then pruning them drastically to give "an otherworldly appearance," according to Seierup, "like something that you would see at the bottom of the sea or on Mars, but certainly not in an office park."



"It was pretty easy for us to see which architectural moves needed to be lighted outside," says Brogden. "Of course there were the gnarly trees, big cacti, and aloe plants, and we uplit and silhouetted these in incandescent and metal halide. We wanted to give the driveway some texture, so it has been raked with incandescent light from MR16s." The designers also located different kinds of light sources to take advantage of their colors: warm incandescent light washes plants and concrete surfaces, cool metal halide was used where the galvanized panels were installed, and slightly warm compact fluorescent was

Project: *Ten9Fifty, Culver City, California*
Owner: *Skye Partners*
Architect: *Steven Ehrlich Architects—Steven Ehrlich, FAIA, principal; Nick Seierup, AIA, partner-in-charge; Tom Zahlten, project architect*
Lighting designer: *Horten • Lees Lighting Design—E. Teal Brogden, principal-in-charge; Le Nguyen, Tina Aghassian, designers*
Contractor: *Pinnacle Contractors*





FLOOR PLAN

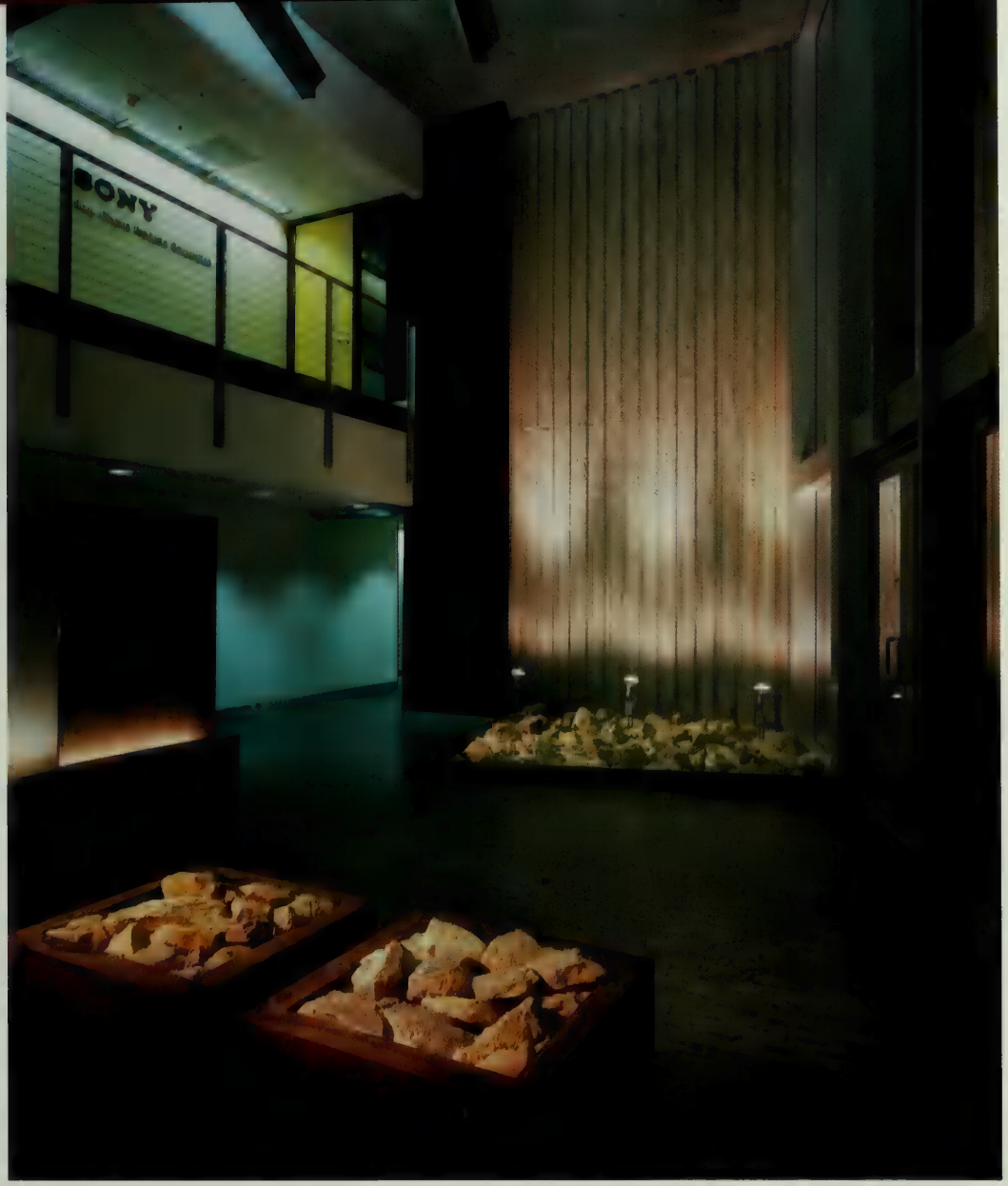
1. *Soundstage*
2. *Office space*
3. *East building entry*
4. *West building entry*
5. *Driveway*

To convey the concept of the corridors as deforested canyon walls (left), Horton • Lees developed fluorescent lights that cantilever out from the walls, using generic six-foot fluorescent strips with bent metal shades.

the entry of the west
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, silhouetting plants.
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tal shields—are
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ow, black plaster
closure conceals a
-voltage incandes-
nt strip that uplights
building directory.

office (below) is
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rescent fixture with
ustom-made pris-
tic lens attached
ler the lamps.





used to backlight fiberglass canopies.

Inside the two buildings, Seierup and Brogden further developed the industrial, low-cost, low-maintenance, "moonscape" scheme. "Where you would see potted palms in the public spaces of some office buildings," says erup, "we provided Noguchi-like planters made of rusted steel and ed with rocks." In the lobby, simple industrial lampholders are used h R-lamps to wash the corrugated concrete lobby walls, and the ceiling ighted indirectly using simple fluorescent strips mounted inside bent tal shields. The building directory, set in a black plaster base, is uplit by ow-voltage strip.

"The idea for the corridors was that they should be like deforested canyon walls," says Brogden. To communicate this idea, the corridor walls vary in width, and the floors are lined with more planters full of rocks. Brogden designed a cantilevered metal shroud, which resembles a tree trunk, to enclose a six-foot fluorescent strip. Pinned at the bottom to the wall, the shroud is supported at the top by a Y-shaped cable.

The joy of doing architecture for entertainment clients, says Seierup, is that "most of them are young, and they don't have conservative tastes." The 180,000-square-foot project was fully leased within a year of its completion. ■

Sources

Fluorescent strip lights: *L.A. Lighting*
Custom fluorescent shrouds: *Pinnacle Contractors*
PAR lampholders, incandescent jelly jars: *Stonco*
Low-voltage tree uplights: *Greenlee*
Metal-halide floodlights: *Lithonia*
Compact-fluorescent accent lights: *Focus Industries*
Incandescent and fluorescent lamps: *Osram-Sylvania, General Electric*



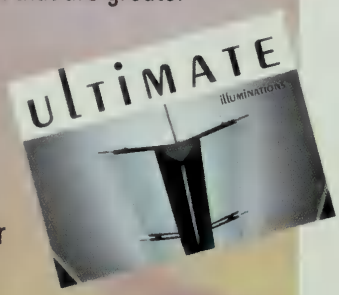
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Opinion: Avoiding the Pitfalls of Bid Packaging, Knockoffs, and Value Engineering

by James R. Benya

In my 26-year career as a lighting designer I have seen many changes in the way lighting is specified, priced, and delivered to the project. It is, after all, the responsibility of the designer to ensure that the client receives the full benefit of the design at a fair price. guarantee this outcome, it has become more important than ever for e designer to understand how the system works once his or her project completed, and to know what to do if problems arise.

When I began working as a designer in the early-1970s, I was tremely impressed by the power of specifications. Virtually whatever I ecified showed up on the site, no questions asked. The only people who ight have questioned the status quo were the clients: If contractors eren't taking bids for competitive products, the clients asked, were they tting the most for their money? Of course, we designers felt that they ere: we were writing single-product specifications to assure that the best uipment would be used on a job and that the intent of our lighting signs would be fulfilled. Despite our best efforts, however, not every ent understood or valued the intent of the single-name spec.

In the late 1970s the rules of specifying lighting began to ange. Some say it was large A/E firms that promoted the new policy of iting three-name-or-equal specs to guarantee that clients would get od prices. Others thought the practice was started by federal agencies as way to prevent influence-buying by manufacturers. Whoever initiated it, e idea caught on quickly, and it has come to have consequences that no ne could have foreseen. Soon government agencies, large corporate ents, and developers began to require that for each type of fixture on project, the designer would specify three "equal" products and their anufacturers. Who could blame them? Under the old system, in which ngle-name specs were used, some designers overcharged for products; e new system seemed to be a way to cut costs while still maintaining ality.

When three-name specs were first required, it was not difficult work with them because product development in the lighting industry d been minimal during the preceding 15 years and three equal products uld almost always be easily specified. Optics weren't very sophisticated, ere were far fewer types of light sources, and, it being the end of the ipped-down Modernist period, there were few wall sconces or decora- e pendants. Lighting was still specified by engineers in a manner similar plumbing.

nes R. Benya is the principal of Benya Lighting Design of West Linn, Oregon, and frequent contributor to ARCHITECTURAL RECORD's *lighting section.*

Still, there were some products that had no equals: Columbia's parabolic troffers, Gardco's "shoebox" area lights with faceted HID reflectors, and the electronic dimming ballasts made by Lutron, for example, were all unique. But unfortunately, with the advent of the new specifying system, designers lost some of the freedom we had enjoyed to specify products that had no equals. We were compelled to list three products or use the expression "or equal," whether a true equal existed or not.

This practice, in turn, forced lighting manufacturers to introduce products that could be considered equals to those of competing manufacturers—or to face a loss of business. Soon enough, virtually every manufacturer of lensed troffers introduced a parabolic troffer, and every outdoor lighting manufacturer started making shoebox area lights with faceted reflectors.

Although the three-name spec succeeded in minimizing the abuses possible with single-name specification and even inspired product innovations, it also made it difficult for designers to install products that had no equals—products on the leading edge of lighting technology.

HREE-NAME SPECS ASSURE THAT ONE MANUFACTURER'S INNOVATION SOON BECOMES EVERYBODY ELSE'S COMMODITY-GRADE KNOCKOFF.

A far worse consequence of the three-name spec system is that it encourages manufacturers to copy the work of their competitors. It doesn't take long for one manufacturer's expensive, high-quality lighting innovation to become everyone else's commodity-grade knockoff. Since there is no point in one manufacturer knocking off another's product unless it can be made more cheaply, the lighting equipment that gets installed on a job is often an inferior, unauthorized, and royalty-free copy or approximation of the design of the inventor. It's no wonder that innovation and research are stifled in the lighting industry.

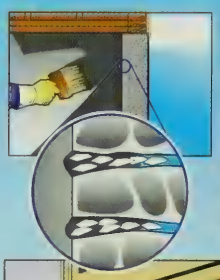
Some products are now being protected by patent. And there is some protection for luminaire makers in the realm of "trade dress" law. But trade dress recognizes only the way a product looks, not the way it works, as intellectual or creative property. And because legal protection is expensive and requires constant vigilance, in addition to the fact that the lighting industry has low profit margins and short product life cycles, the legal route is seldom pursued.

Enter packaging

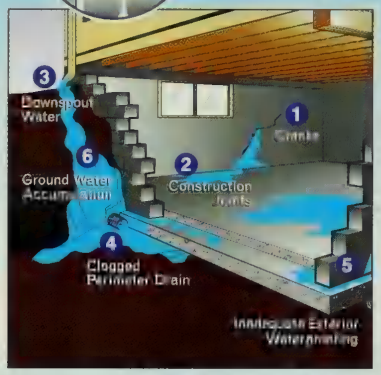
While it's still possible to specify a unique product on the job, another development has affected the lighting designer's ability to do so. By the mid-1980s, prices for lighting products had become much more competitive—and the incomes of manufacturers and their agents had been dramatically reduced. To recover some of the profitability of the good old days, manufacturers resorted to "packaging." The manufacturers went

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through a period of consolidation in an attempt to increase the range products they could offer for sale. Meanwhile, manufacturers' agents, representatives, increased the number of product lines they represented that they could offer an "equal" lighting product for just about everythi that might be specified on a job. In today's market, an agency representi a major lighting manufacturer might also carry the product lines of 30 40 smaller lighting companies.

The competition to supply a lighting package on a building extremely fierce, driving profit margins down to 2 or 3 percent on high volume fixtures like troffers and downlights. Since a rep's profit is base on the sum of the commissions they are paid on all of the different piec of equipment in the package, they must use every means possible increase these margins while still offering the electrical distributor—wh

PACKAGING AND OVERAGE MAY BE ILLEGAL, BUT THERE IS LITTL POLICING OF THESE PRACTICES.

will sell the package to the contractor—a lower price than competi agencies that represent other manufacturers. When a designer writes one-name specification for a product that has no equal, the rep that ha dles it can gain an unfair competitive advantage over competitors: the re will simply refuse to sell this unique item at a reasonable price, or refu to sell it at all unless he or she is allowed to furnish the rest of the packag Made up of a number of "equal" products that have been substituted f those in the original specs, the package allows reps to include produc sold by the manufacturers they represent. The electrical distributor bu the product from the manufacturer, who pays the agent a commission— typically 5–10 percent for small quantities of fixtures and less for a larg order.

The package is usually priced as a lump sum, without an iten ized breakdown of costs for individual items. By not providing individu prices, both the rep and the manufacturer can make money throug "overage," where the agent charges more than the manufacturer's list pri for a given product. Overage is split between the manufacturer and t agent, often on a 50/50 basis, although it is rumored that some agents te manufacturers they simply won't push their products unless they're give 100 percent of the overage. Using overage, an agent can often make mo money selling $100,000 worth of specialty lighting than $1,000,000 wort of troffers.

Both packaging and overage are violations of federal law—t Robinson-Pattman and Clayton Acts—but there is little policing, and t practices are seen everywhere. To their credit, most manufacturers woul rather not participate in these practices, but the agents are very powerfu Keep in mind the money involved: a superagent, like a sports superst can mean tens of millions of dollars worth of business for a major ma ufacturer.

"Value engineering"

Knowing that packaging and overage occur, bureaucrats, developers, a corporations have responded with "value engineering." Often this servi is provided by the electrical contractor, distributor, and agent, whose f is based on how much cost they can cut from the original bid (which i some cases may have been inflated by overage). Because the fee is base on cost cutting, the "value" of this "engineering" may manifest itself i compromised aesthetics, increased glare, poor color rendering, and ina propriate light levels—an overall sense of reduced quality. The late

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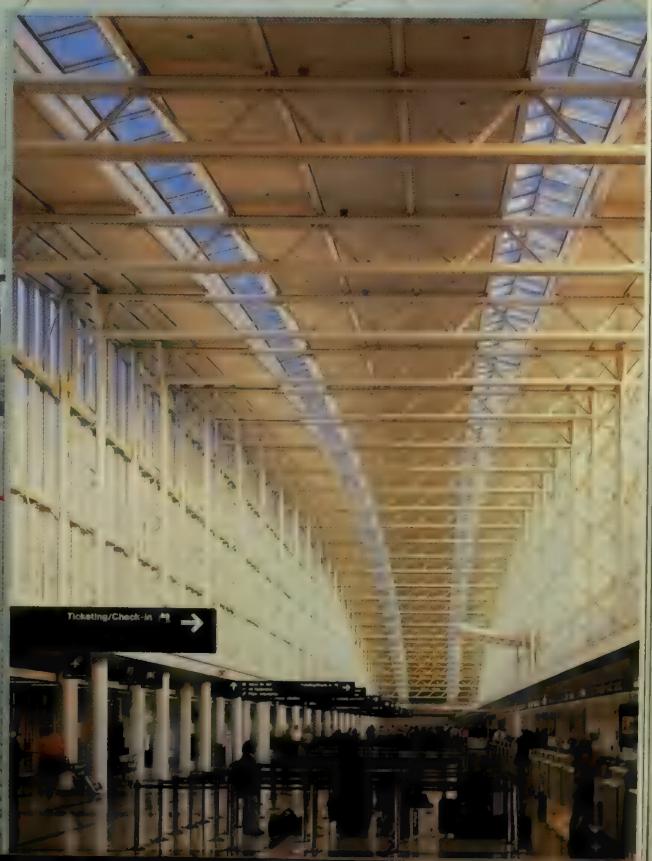
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horror stories describe incidents where value engineering has begun during design, even before the contractor has been hired.

Architects and lighting designers can make a difference in eradicating value engineering by anticipating and preventing the system's worst problems.

Know your budget. The budgets for fast-track projects tend to be made up on the fly, and architects often begin design without a clear budget. Make sure you know your budget; if the budget isn't set, make sure you know who will set it and when. Also, don't engage in wishful thinking: be sure your budget and your design match.

Obtain confirmed unit pricing from agents. When developing your design, obtain written quotations from the manufacturer's agent giving a guaranteed price—including the distributor's markup—for every significant product. Ensure that the price is available through a bona fide electrical distributor located close to the project site. Make sure that the specs are "package-free," or remove products with no equals from the specs and have them supplied directly by the owner.

Specify products of ethical companies. Some manufacturers do not engage in overage and other unethical practices. Let agents know that you will not tolerate overage, packaging, and other practices that decrease the value of your client's investment. If a manufacturer substitutes a direct copy of a product, reject it unless the company submits a release from the original manufacturer stating that the design is public property or that appropriate royalty arrangements have been made. If the substitution ha been made without a release, contact the original manufacturer and le the company know what has occurred. Well-written performance spec will help prevent the substitutions of copies.

Be your own value engineer. Don't let others "value engineer your job. Those who are doing the value engineering rarely understan the design criteria on which good lighting is based. Protect your clien and your design, but be prepared to compromise.

Complain to the manufacturers. While packaging is rare in som markets, in others it is still rampant. When agents act improperly, d something about it. Complain to the company that is represented by th problematic agent. Let the manufacturer know that their reputation i being damaged in the marketplace.

ARCHITECTS AND LIGHTING DESIGNERS CAN MAKE A DIFFERENCE BY ANTICIPATING AND PREVENTING THE SYSTEM'S WORST PROBLEMS.

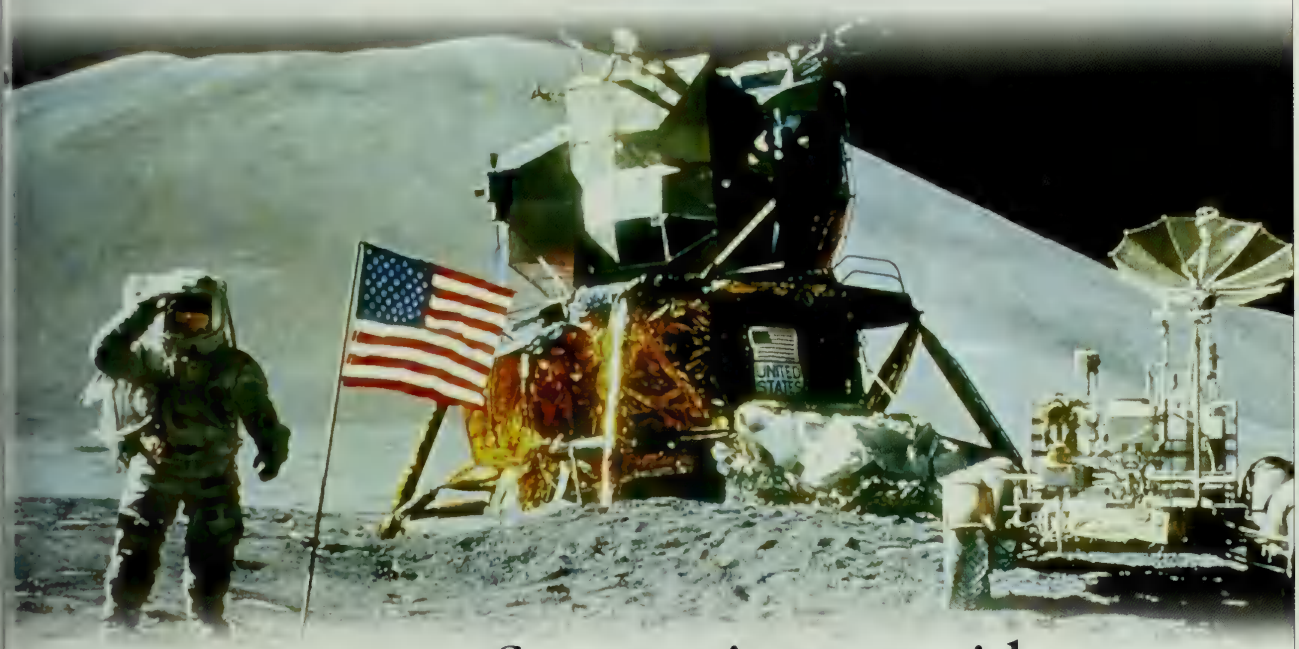
Stay involved with the project and your client. Stay in contac with the important parties on a project so that your client will discus value engineering and other activities with you before making decision

It will always be true that specifications make or break mos lighting jobs. While many designers worry that they are losing their influ ence, we can be proactive in protecting our designs and the interests c the client. It takes more strength than it used to, but it's still worth th effort: no matter what happens behind the scenes on a lighting job, whe people look at the results, it is the lighting designer they will congratulat for the good work or blame for the bad. ■



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ndirect Lighting that Mounts without Stems or Cables

by Lindsay Audin

iven a choice, most people prefer indirect lighting over direct. We are surrounded by varieties of indirect lighting—wall sconces, torchères, coves, valances—all of which depend on structural surfaces to act as reflectors and diffusers of their out- ıt. When done properly, the effect of indirect lighting is a bit like being ıtdoors: harsh shadows are diminished, and light seems to come from around as well as above, unlike the sharply defined distribution typical direct lighting. Indirect lighting reduces brightness/contrast ratios d minimizes reflections in video display terminals (VDTs), which are ıong the major causes of eye strain in offices and other spaces where mputers are used.

Indirect light also tends to mix well with daylight from win- ws, making it a natural choice for rooms where light-sensing dimming ntrols are used to balance daylight and electric light levels. It helps oid the greatest objection people have to this type of dimming control: ıt light levels change too quickly and can therefore be too distracting to ? room's occupants.

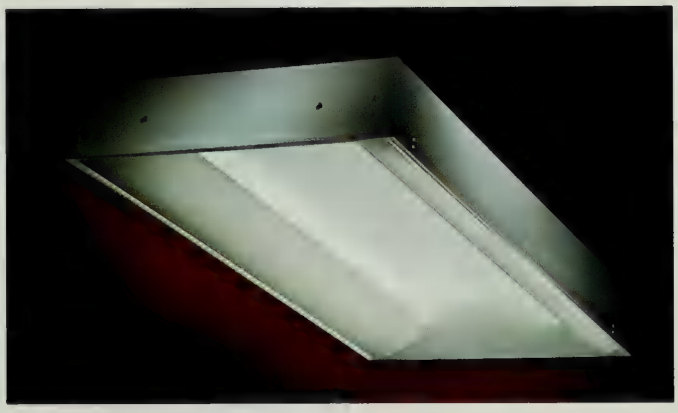
ate-of-the-art indirect

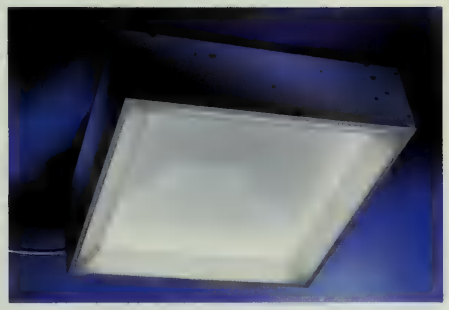
direct uplighting generally consists of a light source mounted in a metal using, which conceals a primary reflector that bounces light out of the ture and diffuses it; a light-colored ceiling serves as a secondary reflec- :. In order to achieve uniform ceiling brightness and allow for plenty of ıce between rows of fixtures, most of these systems are suspended from ɔles or pipe stems 15 to 18 inches below the ceiling. Depending on the ıterials used in their construction and the sophistication of their opti- systems, indirect uplight systems can be expensive to manufacture and ficult to install.

One of the biggest drawbacks to indirect systems is that they ıuire higher ceilings than direct systems and will not be effective if they ? blocked by major obstructions, such as ducts and horizontal beams. direct fixtures that are hung too close to the ceiling result in bright ipes of light over the fixtures. In renovation work, preparing the :num and ceiling grid and repairing the ceiling itself for indirect light- ; can add significant time and cost, often placing this option beyond ıny budgets. Experience also shows that light fixtures hanging less than ht feet above the floor often fall victim to the dreaded ladder carriers of ? world.

A number of lighting manufacturers have come up with lumi- ires that produce indirect light similar to that provided by ndant-mounted units, except that they can be used at standard ceiling ights and easily retrofitted. They can be recessed or semi-recessed in a

dsay Audin is president of Energywiz Inc. and lighting research consultant to ource, a Colorado-based energy consulting firm.





The lamps and shields of Focal Point's Sky-lite II are located at the perimeter of the fixture.

standard suspended grid system, or surface-mounted onto a drywall or plaster ceiling. These fixtures are equipped with perforated screens that allow the lamps to admit some brightness, and a curved metal reflector to bounce light into the space below. While more appropriately termed "direct/indirect" because of the light that passes directly through their screens, most of these fixtures' light is reflected from their exposed surfaces. These fixtures are available in one-by-four-foot and two-by-two-foot configurations, using T8, T5, or large compact fluorescent lamps.

There are many types of ceiling-mounted indirect luminaires available today; those of Focal Point and Zumtobel Staff are typical of two styles currently in production.

Focal Point fixtures

The series of fixtures produced by Focal Point represent a new entry into the field. All of this firm's units are designed to fully recess into standard ceiling grids. A white matte-finished surface acts as the reflector/diffuser, and the lamps, located at the perimeter, are covered by curved perforated screens. The distance between the lamps reduces the apparent brightness of the reflector and allows output to be increased by adding more lamps. Up to four 55W compact fluorescent lamps can be used in the two-by-

two-foot fixture shown on the preceding page, offering a powerful light source for high ceilings or specialized locations.

A case study: the Zumtobel Staff RCII

The Zumtobel Staff Lighting RCII Direct/Indirect Lighting System is available in surface-mounted, partially recessed, or suspended-ceiling versions. I installed surface-mounted units in my home office in late 1996 (right). Cutting into the wood-lath-and-plaster ceiling of the 108-year-old building was out of the question—the spacing of the joists would not have allowed proper recessing. But mounting the fixtures directly to the eight-foot ceiling was easy, and the fixture's six-inch depth is shallow enough to avoid placing a visually distracting, low-hanging object in the space. As I write this article, I am surrounded by well-distributed light that fully illuminates both my desk and nearby bookcases.

The key to the RCII system's indirect light is a gull wing–shaped, matte-finished, near-hyperbolic reflector that softly bounces light out of the fixture. The surface-mounted version also reflects light off the surrounding ceiling, further distributing it. Unlike the Focal Point fixtures, the lamps in the Zumtobel system run down the center of the fixture; designers can specify either one or two T8 or T5 twin-tube lamps, depending on the amount of light needed. The RCII system also includes wall sconces, as well as fixtures that can be tucked into the intersection of the ceiling and wall planes.

Calculations and maintenance

A few cautions are worth noting. While the brightness/contrast ratios produced by recessed indirect fixtures are not as high as those produced by the typical parabolic troffers found in many offices, they are not as low as those of suspended indirect fixtures. Mockups and photometric studies of fixtures from different manufacturers can help determine if the ratios are low enough.



In the surface-mounted Zumtobel Staff RCII system fixture, lamps are mounted in a basket that is made of perforated metal and hung beneath a matte-finished gull-wing reflector.

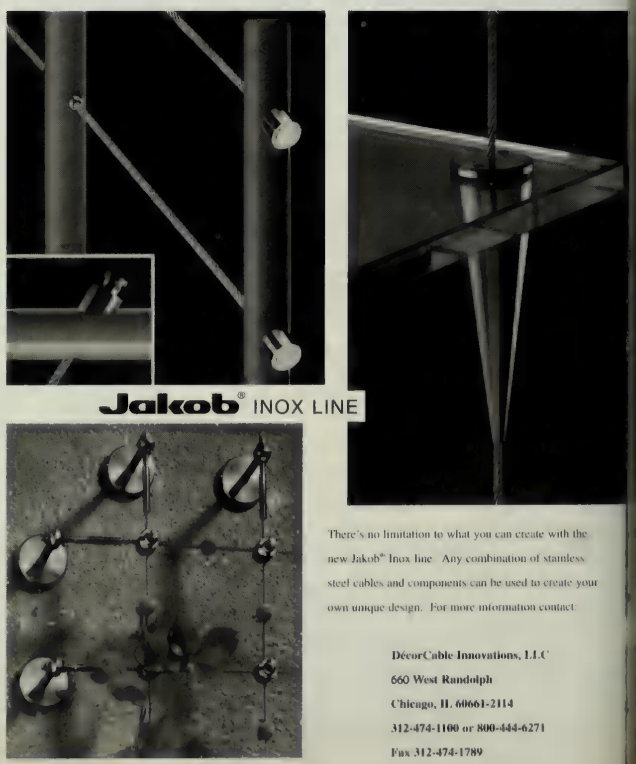
Also, installation of indirect systems requires care. Smudges and fingerprints on the fixtures' exposed surfaces are easy to remove, but cleaning them once they are installed is inconvenient, to say the least. Perforated screens are great bug and dirt catchers, although they are hinged and swing down for cleaning. Since most light fixtures don't get cleaned until their lamps burn out—and often not even then—it would be wise to consider a facility's cleaning regimen before specifying. Avoid installation in rooms where exterior doors are present, such as lobbies and exterior corridors.

Product sources

Information is available from Focal Point at 708/385-7575 and Zumtobel Staff at 914/691-6262. ■



CIRCLE 75 ON INQUIRY CARD



CIRCLE 76 ON INQUIRY CARD

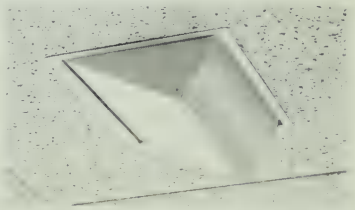


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CIRCLE 78 ON INQUIRY CARD

IGHTING BRIEFS

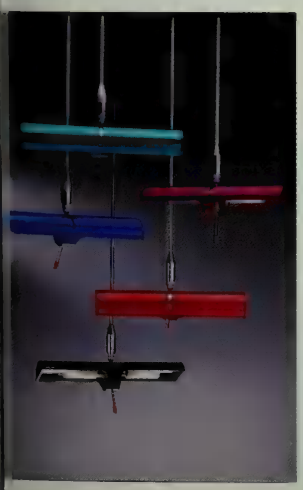
Lighting Las Vegas

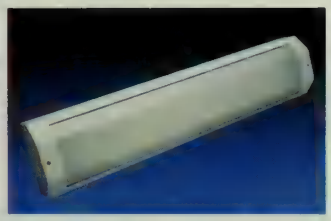
ie main entrance of Las Vegas's Luxor otel (below) is intended to make a and impression on visitors. Lighting the terior required a wide array of lumi- ires to achieve the dramatic effect. e source for the lighting fixtures was SA Lighting's BriteStar collection, an extensive line of architectural linear lighting. Metal-halide, halogen, and incandescent lamps are all available in rigid or flexible strips. Lampings are available in horizontal, vertical, and festoon configurations. BriteStar also includes Promenade, a step and aisle lighting system. 800/356-3030. RSA Lighting, Chatsworth, Calif. **CIRCLE 239**



Mix-and-match halogens

ıck Lighting's modular Uni-Lights are ailable in more than 70 styles. Each le of interchangeable Uni-Lights can plugged into any one of seven low- tage halogen track systems using adapter. Bini (shown) is available in finishes: matte aluminum, green, l, turquoise, violet, and black.The -by-9-inch luminaire can be rotated d angled, then locked into position. l/259-1000. Bruck Lighting, Tustin, if. **CIRCLE 240**





▲ Cold-weather fluorescent

Morlite Systems, a subsidiary of the JJI Lighting Group, now offers the LPL HO series, a line of high-output, cold-temperature fluorescent luminares. Two 60W T12 high-output fluorescent lamps provide illumination. The Class P HPF magnetic ballast is rated to -20° F. 814/774-9631. Morlite, Girard, Pa. **CIRCLE 241**



◄ Ambient lighting supports

Office Specialty's ambient light fixtures for the Platform office furniture system are supported by oval upright supports. The supports are available in two heights; the lights are available in five widths, using four to six fluorescent lamps depending on the size of the fixture. A downlight is incorporated into the design. 905/836-7676. Office Specialty, Holland Landing, Ont. **CIRCLE 243**





▲ Versatile wall sconce

Lightolier's Lumibox ADA-compliant sconces are constructed of an injection-molded acrylic box with a medium-density fiberboard frame. Fourteen styles are available. The fixture uses two 13W quad-tube compact fluorescent lamps, with electric, dimming electronic, or magnetic ballast. 508/679-8131. Lightolier, Fall River, Mass. **CIRCLE 242**

▼ Wet-weather strip lights

Ardee Lighting's Clikstrip for Damp Locations is a flexible, low-voltage linear strip light for environments such as decks (left) and gazebos. Made of high-temperature polyethersulfone extrusion, the system can use four to 100 incandescent, argon, or xenon gas–filled festoons. 704/482-2811. Ardee Lighting, Shelby, N.C. **CIRCLE 244**



▼ Designer pendants

Designed by Erik Moller Architects, Poulsen Lighting's Minimal pendant is available in opal hand-blown glass, white powder-coated aluminum, or opal acrylic. The pendant, for use in restaurants, conference rooms, libraries, and offices, uses a compact fluorescent lamp with a maximum of 18 watts, or an incandescent lamp with a maximum of 75 watts. A spring system allows for easy lamp replacement. The housing is finished in powder-coated aluminum in metallic gray or white. 954/349-2525. Poulsen Lighting, Fort Lauderdale, Fla. **CIRCLE 245**



LIGHTING BRIEFS



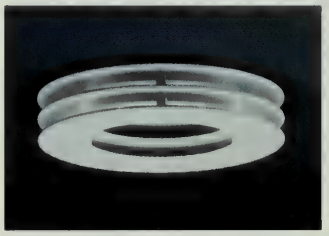
▲ Energy-efficient wallwasher
Elliptipar's Style 211 uses asymmetrical reflectors and 32W or 42W Hex Tube compact fluorescents to light walls nine feet tall and higher with 25 percent fewer luminaires, allowing wider spacing and reduced energy use. The semirecessed design fits new or retrofit lay-in grid or drywall ceilings. 203/931-4455. Elliptipar, West Haven, Conn. **CIRCLE 246**

▼ Powerful post top
McGraw-Edison, a Cooper Lighting brand, has introduced the Westminster Acorn lamppost top. Utilizing new refractive prisms, more usable light is redirected downward. The efficiency gains allow the fixtures, which can be wired for 120-, 208-, 240-, 277-, or 480-volt service, to be spaced up to twice as far apart as similar fixtures. 847/956-8400. Cooper Lighting, Elk Grove, Ill. **CIRCLE 247**





▲ High-efficiency fluorescents
Sportlite's LX800 Series High-Bay compact fluorescent lamps supply 25,600 lumens and 85 percent lumen maintenance for a 25–40 percent energy savings over 400W high-intensity-discharge high-bay fixtures. 602/468-6200. Sportlite, Phoenix. **CIRCLE 248**



▼ High-load dimmers
The Decora Home Controls (DHC) dimmer module from Leviton has a 1,000W load rating. Applications include home theaters, living rooms with high hats, and entries where an existing DHC system is in use. 800/323-8920. Leviton, Little Neck, N.Y. **CIRCLE 249**



◄ Low-profile style
Poulsen Lighting's Micro series recessed low-voltage fixture is suitable for ceilings up to one inch thick. A low-voltage light source (maximum 50W halogen Bi-pin lamp) is encased in protective glass for safety. 954/349-2525. Poulsen Lighting, Fort Lauderdale, Fla. **CIRCLE 250**

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GHTINGBRIEFS

imple style

igner Ron Rezek has crafted the new l series of luminaires for Artemide. n the table lamps (shown) and the r models feature a die-cast metal e with a matte nickel plating finish. upper and lower shades are con- cted of light-diffusing plasticized er material. 516/694-9292. Arte- e, Farmingdale, N.Y. **CIRCLE 251**



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▲ Customizable pendants

Visa's new Companion pendants have been scaled down for use in more intimate applications. The fixtures are available with eight different acrylic diffusers and five stem options. Faux alabaster diffusers are optional. Finishes include chrome-plated brass, polished solid brass, satin nickel, and painted. Incandescent and fluorescent lamps are available. 800/788-VISA. Visa, Milwaukee, Wis. **CIRCLE 252**

▼ Multitask retail lighting

Shown below installed at Sephora, a New York City cosmetics retailer, RSA Lighting's new Combo is a multipurpose, multilamp, single-installation recessed fixture. Featuring an integral ballast/transformer that supports nine lamp sources, with two to 42 lamps in a single unit (inset), Combo provides flexibility without ceiling clutter. Each lamp rotates 358 degrees with an angular adjustment up to 50 degrees, allowing multitasking from one fixture. Other versions include Combo Decor, for residential use, and Galleria, for architectural interiors. 800/356-3030. RSA Lighting, Chatsworth, Calif. **CIRCLE 253**





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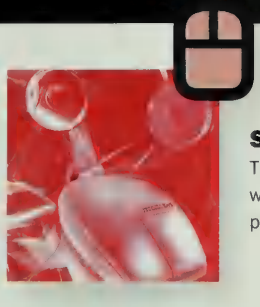
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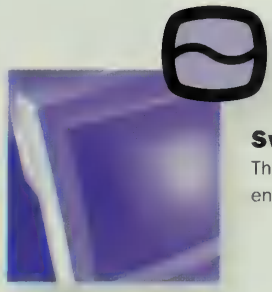
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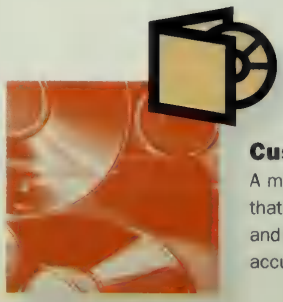
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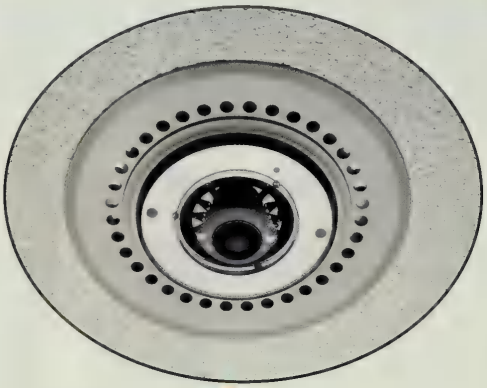
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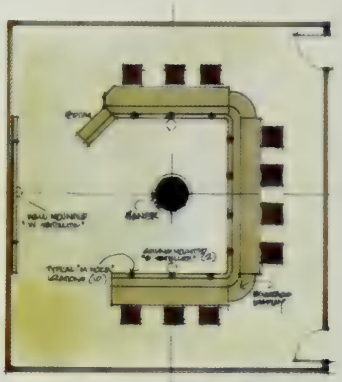
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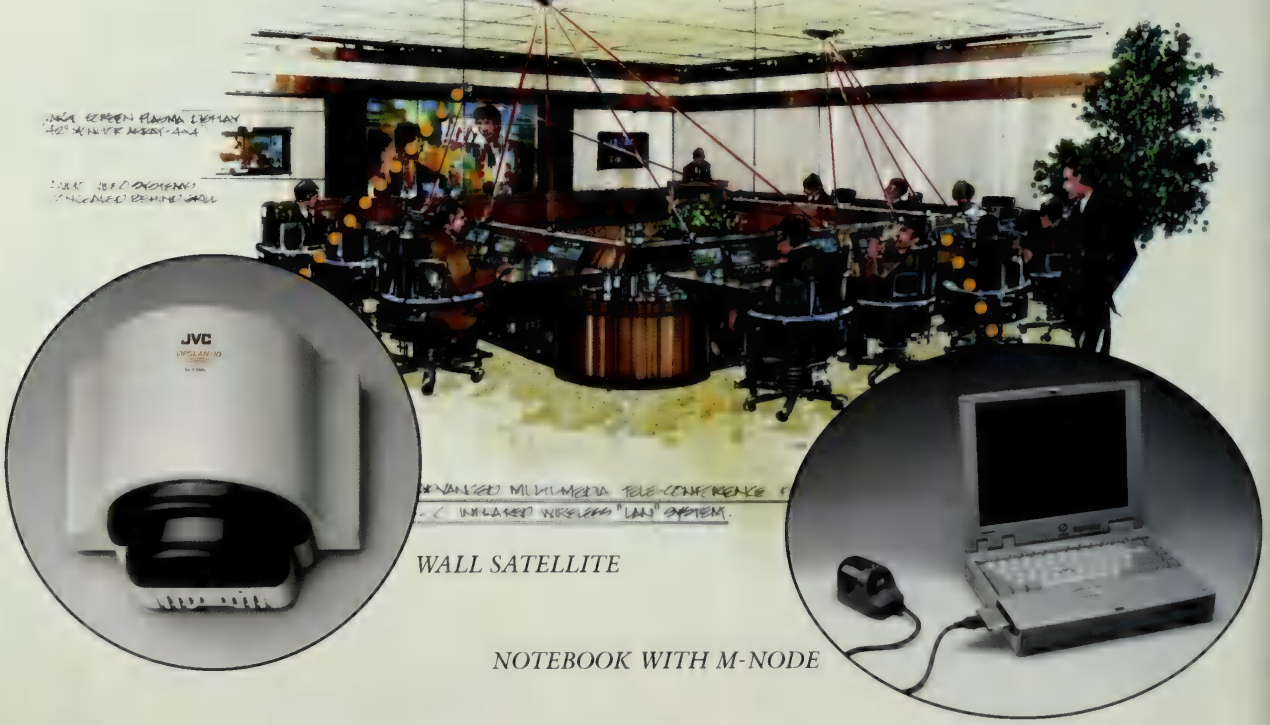
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NEW PRODUCTS

The one-of-a-kind doors created by Pacassa Studios for David Baker Associates (story below) were designed to provide a functional and beautiful entry for an unusual space. The unique proportions of the curved, double-height room required a custom-designed solution. Most rooms, however, don't call for such elaborate door installations, and architects and designers can choose from a wide range of easily obtainable products. The following page of New Products profiles a variety of new doors and door options readily available for both commercial and residential use.







Wooden trusses hang on an aluminum "spine" (far left). The painted-veneer finish mimics a steel door (left). The curved handle is fabricated from zinc-coated steel (above).

JSTOM-MADE CONFERENCE ROOM DOORS COMBINE WOOD AND ALUMINUM FOR MASSIVE APPEAL

five years, the conference room David Baker's San Francisco hitecture office had an open door icy—because there was no door. e room itself was formed by a ving masonry wall, and the height he opening, about 15 feet, com-unded the problem of adding vacy to the space. There were no the-shelf solutions, and Baker s willing to wait for a door that s aesthetically pleasing and func-al. After "four or five years" of ancing ideas back and forth with igner Paco Prieto, principal at assa Studios in Oakland, Califor-. 1998 was the year Baker got at he wanted. "These doors," he s, "work extremely well."

When closed, the vaultlike pair 5-foot-tall doors does not appear e made from a wood and alu-um frame with a wood veneer . "People often touch them re they realize they're not heavy and made of metal," says Baker.

Prieto, who had been experimenting with truss-based structures for nearly a decade, designed and built the doors, which were fabricated in his studio. Each door pivots on 1½-inch-diameter anodized aluminum tubing that was fitted with a custom ball-bearing assembly and secured at floor and ceiling. Attached to the center-pivoting "spine" is ⅝-inch anodized aluminum tubing. The doors' interwoven Honduras mahogany trusses hang from the aluminum assembly, and the skin is ⅛-inch-thick birch veneer. Both sides were etched with a diamond pattern, coated with silver paint, then finished with a clear lacquer.

Because Pacassa's creations weigh in at only around 150 pounds each, "wind circulating through the building used to blow them open," says Prieto. His solution was to add a concealed, spring-loaded magnetic catch to keep the doors in position, as well as holding them open at various angles. The right door can pivot a full 360 degrees; the left door was notched in the upper right hand corner to allow clearance for a sprinkler pipe.

When Prieto was delivering the doors to Baker's offices, he discovered that they were too large to fit through the building's corridors. But, as luck would have it, a "window of opportunity" arose when a residential unit in the building became vacant for a short time. Prieto moved the doors in through an opening created by removing one of the unit's 100-year-old casement windows, thus bypassing some tricky corners in the building. The type of adaptive thinking Prieto demonstrated here is what made the design a success.

510/465-4655. Pacassa Studios, Oakland, Calif. CIRCLE 202

MADE-TO-ORDER DOORS

When the right door for a space falls outside a manufacturer's standard offerings, a custom piece is the answer. Here, a selection of custom door fabricators from around the U.S.

Grand Entrances *3941 Legacy Drive, Box 204–304, Plano, Tex. 75023. Old World hand-forged iron doors, iron fencing, and entry systems.*

ENJO Architectural Millwork *16 Park Avenue, Staten Island, N.Y. 10302. Wood doors and windows, wainscoting, wood storefronts, and moldings.*

The Artisans *5729 Highway 93 S., Whitefish, Mont. 59937. Hand-crafted doors in red oak, red elm, mahogany, knotty alder, pine, butternut, and ash.*

Cline Aluminum Doors *112 32nd Avenue W., Bradenton, Fla. 34205. Custom aluminum doors based on standard construction designs; custom framing systems.*

Concept Frames *P.O. Box 248, Newton, N.C., 28658. Custom hollow steel frames to architects' specifications.*

DOORS AND HARDWARE FOR SAFETY AND SECURITY

These doors and door accessories prove that off-the-shelf items can solve many of the exit and entry requirements a building presents. Whether the need is for a custom size, a period look, or a few special features that allow for accessibility, the manufacturers highlighted here provide products for a multitude of design requirements.



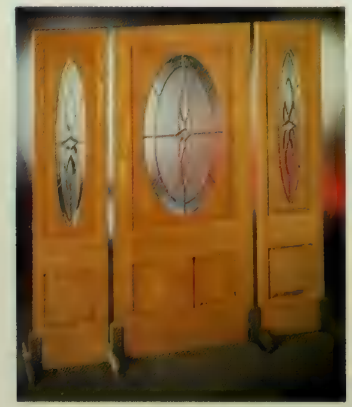
▲ Affordable, accessible door
Masonite's Craftmaster Commercial Smooth door is available in six-foot-eight-inch and seven-foot heights, and widths up to 42 inches to meet accessibility codes. The doors are compatible with existing hardware, such as electronic card locks and panic bar devices. 800/405-2233. Masonite, Chicago. **CIRCLE 203**

▼ Rustic entryways
Rustica Arts' use of mortise-and-tenon construction adds a 16th-century Mediterranean flair to the company's made-to-order doors. 805/692-8865. Rustica Arts, Goleta, Calif. **CIRCLE 204**



▼ Wood-grain steel door frame
Designed for use with interior drywall framing, Timely's Model TA-30 Colonial steel door frame has a woodlike appearance. The frame is sleeved over finished drywall and the casings are snapped into place; a full-perimeter anchoring system aids frame strength. 818/896-3094. Timely, Pacoima, Calif. **CIRCLE 205**





◄ Classic solid wood doors
Traditional Premier inswing and Manor outswing doors from Kolbe & Kolbe are typically constructed of western pine; oak, maple, mahogany, walnut, and hickory are optional. Door stiles are 4⅝ inches wide and door panels measure 1¾ or 2¼ inches thick. Three standard glass patterns are available—Imperial (shown), Regal, and Dynasty—as well as custom options. Sidelights and transoms are available separately. 800/955-8177. Kolbe & Kolbe, Wausau, Wis. **CIRCLE 206**



▲ Swing-in sidelights
Peachtree's P+L (panel and light) entry door system utilizes a "uniframe": the frame spans the head and sill of the door, and sidelights and transom are a single unit, easing installation and alignment. Both doors and sidelight swing inward, widening the entryway up to 14 inches and allowing extra width for moving oversize objects through the opening. The system is compatible with most Peachtree doors and sidelights. 800/PEACH99. Peachtree Doors and Windows, Norcross, Ga. **CIRCLE 207**

► Fast, secure exits
The Dor-O-Matic 1690 Concealed Rod Panic Device is designed for single or double doors. The touch bar retracts a concealed bottom rod and releases the top latch. When the door closes, the top latch reengages and frees the bottom rod to engage the threshold. 770/449-5555. Kawneer, Norcross, Ga. **CIRCLE 208**



▼ High-rise steel doors
To accommodate higher ceilings and entryways, Stanley's Sta-Tru Premium Steel Door System is eight feet tall. The door has 24-gauge hot-dipped, galvanized steel skins on both sides and a 1¼-inch thermal break to prevent heat loss and interior frost build-up. Single/double door sizes, single/double sidelights, and decorative glass options are available. 800/STANLEY. The Stanley Works, New Britain, Conn. **CIRCLE 209**





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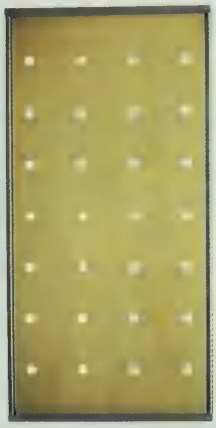
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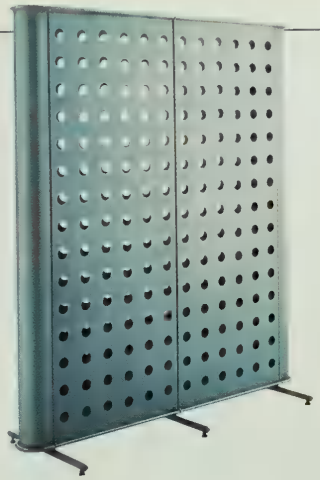
PRODUCT BRIEFS

Sitting pretty

ended for use in public spaces, includ- cafeterias, libraries, universities, and d courts, the Series 2300 Caris chair m Kusch+Co. features a milled back that reveals the natural grain of its beechwood frame. The chair is available in a wide range of colors and a number of wood stain treatments. 516/271-6100. Kusch+Co., Huntington Station, N.Y. CIRCLE 210







▲ Mobile modular walls

Four modular work-panel designs, including Atlantic (left) and Broadway (right) from Zero help divide work spaces. Designed for temporary or permanent installation, the panels are constructed of heavy-duty tubular frames and textured-steel panels. Individual panels can be combined in unlimited range configurations—even cylindrical groupings. 401/724-4470. Zero U.S. Corporation, Lincoln, R.I. CIRCLE 215



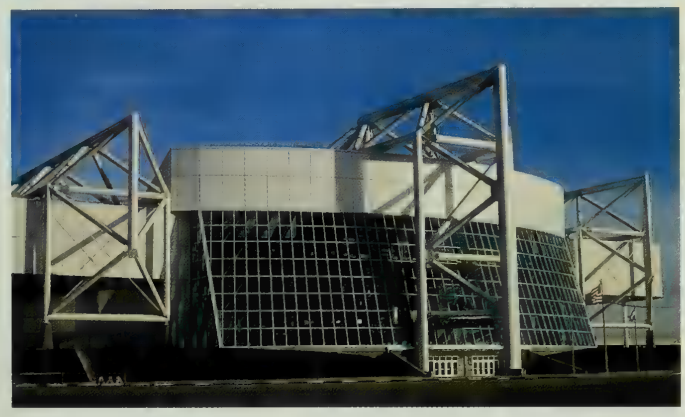
Solutions for signage

med using a continuous soldering cess, Perfect Edge channel letters e a flush face and returns. Available in s from two to 48 inches and in mirror satin finish. 800/729-6807. Stainless signs Inc., Fort Collins, Colo. CIRCLE 211

▼ Matching bath accessories

HEWI has added three new colors—biscuit/linen, bone, and almond—to its palette for grab bars and seats for bathtubs and showers to match colors offered by Kohler and American Standard. 877/439-4462. HEWI Inc., Lancaster, Pa. CIRCLE 213





▲ Grand entrance

Kansas City's Kemper Arena, once a bland monolith, now greets attendees of athletic events and concerts with a 65-foot glass canopy. The curtain wall, an EFCO Series 5800 Silicon Gasket Curtain Wall System, utilizes factory-fabricated, continuous gaskets that snap into place without sealant. 417/235-3193. EFCO, Monett, Mo. CIRCLE 216



Nonslip stair treads

ese nonslip aluminum stair treads can used in new construction or to reno- e worn steps. Installation can be done er surfaces including concrete, wood, te, and marble. Available in eight col- s. 800/321-2381. Musson Rubber, ron, Ohio. CIRCLE 212

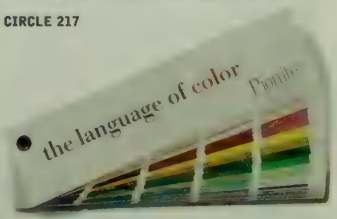
► Water-resistant roofing

Millennium, a water-resistant, polymer-enhanced coal tar membrane system for roofing applications, can be applied on dead-level and very low-sloped roof decks. The three-part system is composed of a Millennium-coated, nonwoven fiberglass base sheet, a Millennium-coated smooth fiberglass membrane, and a granulated membrane cap. Available colors include gray-green, light beige, and black. 800/221-6490. AlliedSignal, Cary, N.C. CIRCLE 214



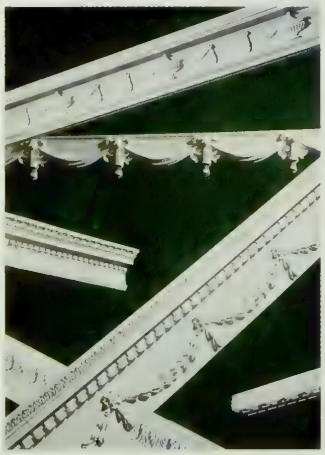
▼ Simplifying color choices

Pionite's Color & Design Guide organizes laminate choices by color family for efficient comparison of color choices. The company's entire line of colors, patterns, and finish options is included. 207/784-9111. Pioneer Plastics, Auburn, Me. CIRCLE 217



PRODUCT BRIEFS

▼ Updating urethane millwork
Style-Mark has added 25 new interior moldings to its line of high-density polyurethane millwork. New styles include dentil garlands, an acanthus leaf, and crisscross and decorative chair rail moldings. The millwork is resistant to decay and rot, making it ideal for installation in high-humidity areas like kitchens and baths. 800/446-3040. Style-Mark Inc., Archbold, Ohio. **CIRCLE 218**



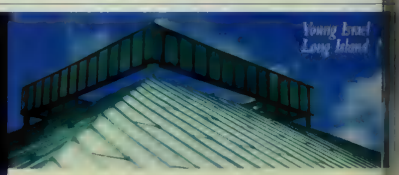


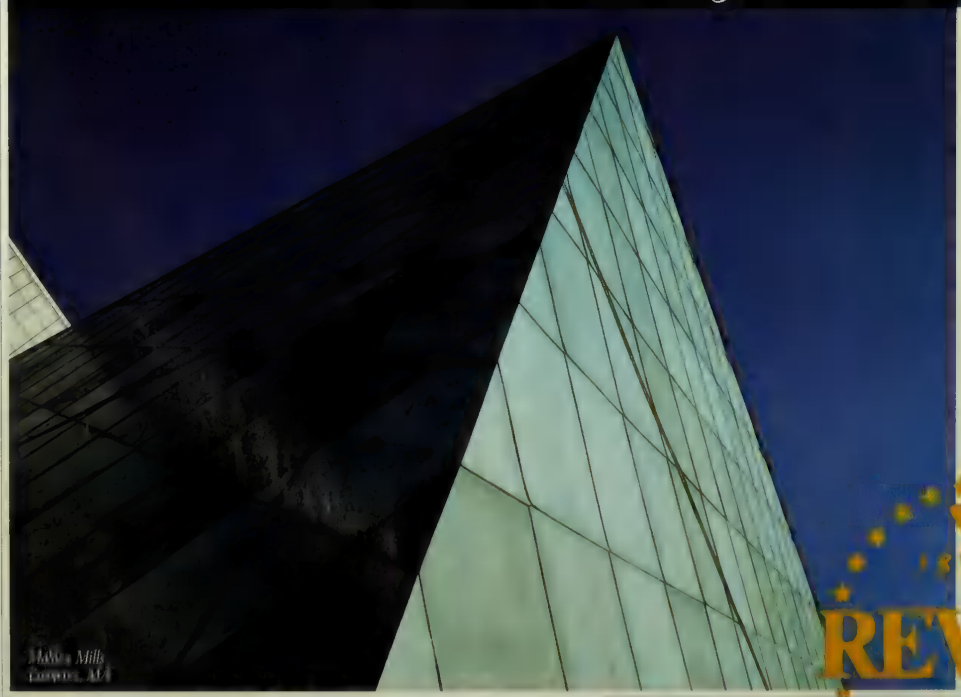
▲ Fast-install precast facade
The Magellan Health Services project in Columbia, Maryland, included the installation of a Slenderwall precast concrete facade from the Smith-Midland Corporation, available through Easi-Set Industries. The 20,371-square-foot application was completed in 25 days. Slenderwall utilizes a two-inch concrete facing, secured by epoxy-coated stainless-steel anchors to steel framing. The precast panels, available in brick, tile, polished granite, and exposed aggregate finishes, accept plumbing, electrical wiring, and insulation. 540/439-8911. Easi-Set Industries, Midland, Va. **CIRCLE 219**

▼ More metal laminates
Formica has added five patterns to the DecoMetal laminate and solid metals collection, for a total of 35. The two new solid metals are Squiggles, a multi-textured pattern, and the braided Twist pattern. New laminates include Large and Small Rivets, and Waves, a horizontal pattern with a soft matte finish. All can be specified for light-duty horizontal and vertical use. 800/FORMICA. Formica Corporation, Cincinnati. **CIRCLE 220**



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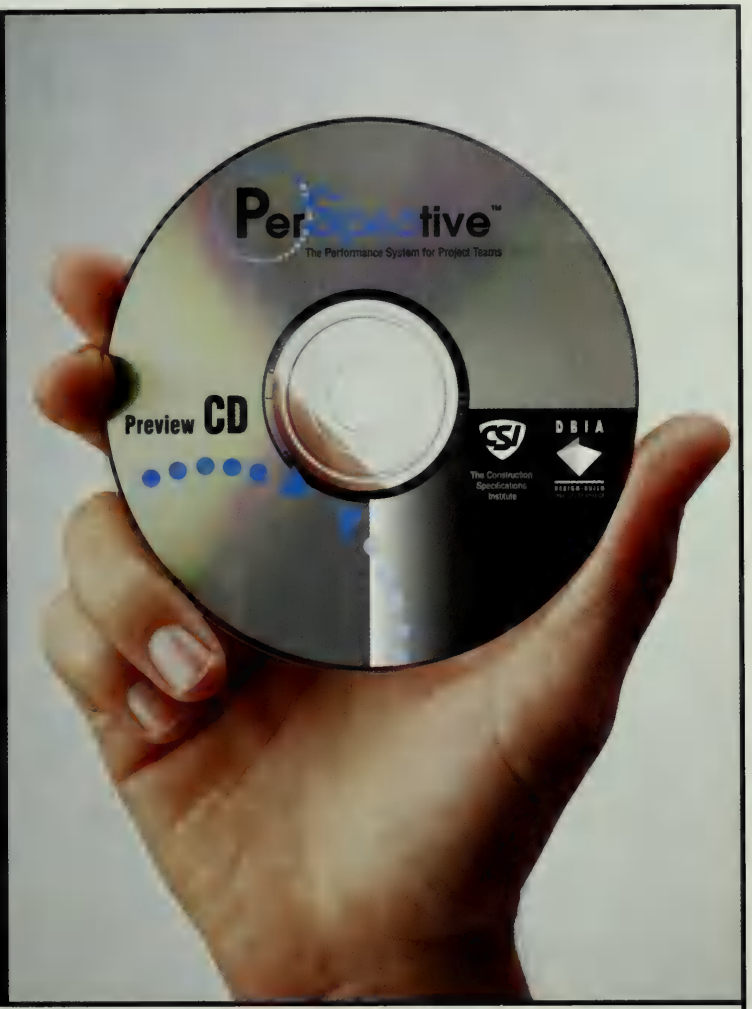
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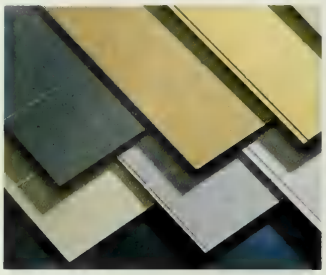
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PRODUCT BRIEFS



◄ Textured finishes for walls

Marlite Plank has added a new Corda series of textured finishes to its line of prefinished commercial wall surfaces. The new finishes include Madera, Piel, Platino, Polvo, Powder, Silver Moss, Vert, and Vicuna. The product is the only 16-inch-wide tongue-and-groove wood-fiber wall product on the market. 330/343-6621. Marlite, Dover, Ohio. **CIRCLE 221**

► Energy-efficient glazing

SunCoat, a new residential low-E glass from Milgard, is designed to reduce heating and cooling bills. The coating reduces solar heat gain due to direct sunlight, a feature that is particularly valuable in southern climates. The glazing also filters ultraviolet rays that can fade fabrics and finishes, and helps reflect radiant heat back into a room in colder months. SunCoat is an option for all Milgard vinyl, aluminum, fiberglass, and WoodClad windows, and is guaranteed as long as the original purchaser owns the home. 800/MILGARD. Milgard Windows, Tacoma, Wash. **CIRCLE 222**





▲ Preassembled sidelights

As an alternative to traditional glass block or clear glass sidelight and transom options, ODL has introduced a six-inch acrylic block product that eliminates the need for on-site assembly in residential applications. (The unit is delivered prehung by the door supplier.) Sidelights and transoms can be purchased separately. 800/253-3900. ODL, Zeeland, Mich. **CIRCLE 223**

▼ Designer paint finishes

After making its debut on the standing seam roof atop the new Bellagio Hotel Las Vegas, Custom Panel's Marblique painted designer pattern is now availabl for commercial projects that utilize exte rior and interior metal components. 909/829-8618. Custom Panel Industries, Rancho Cucamonga, Calif. **CIRCLE 224**



CALL FOR ENTRIES

RECORD INTERIORS 1999

The editors of ARCHITECTURAL RECORD announce the 30th annual RECORD INTERIORS awards program. This program is open to any registered architect; work previously published in other national design magazines is disqualified. Of particular interest are projects that incorporate innovative programs, building technologies, and use of materials. There is an entry fee of $50 per submission; please make checks payable to ARCHITECTURAL RECORD. Submissions must also include plan(s), photographs (transparencies, slides, or prints), and a brief project description bound firmly in an 8½-by-11-inch folder—and be postmarked no later than April 30, 1999. Winning entries will be featured in the 1999 RECORD INTERIORS. Other submissions will either be returned or scheduled for a future issue. If you would like your entry returned, please include a self-addressed envelope with appropriate posta



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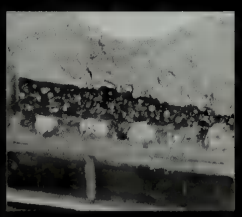
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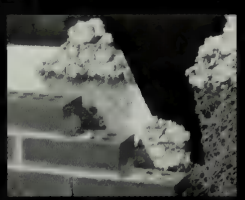
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PRODUCT LITERATURE

Urethane millwork
The Architectural Accents catalog features high-density urethane products. 800/446-3040. Style-Mark, Archbold, Ohio. **CIRCLE 225**

Duct wrap
New literature from CertainTeed introduces Quikseal Duct Wrap, an HVAC insulation product. 800/723-4866. CertainTeed, Valley Forge, Pa. **CIRCLE 226**

HVAC products
Dectron's catalog includes the company's indoor air quality and dehumidification equipment. 800/676-2566. Dectron, Roswell, Ga. **CIRCLE 227**

Building materials
Two new brochures feature Willamette's full line of building products and its industrial panel products. 503/227-5581. Willamette, Portland, Ore. **CIRCLE 228**

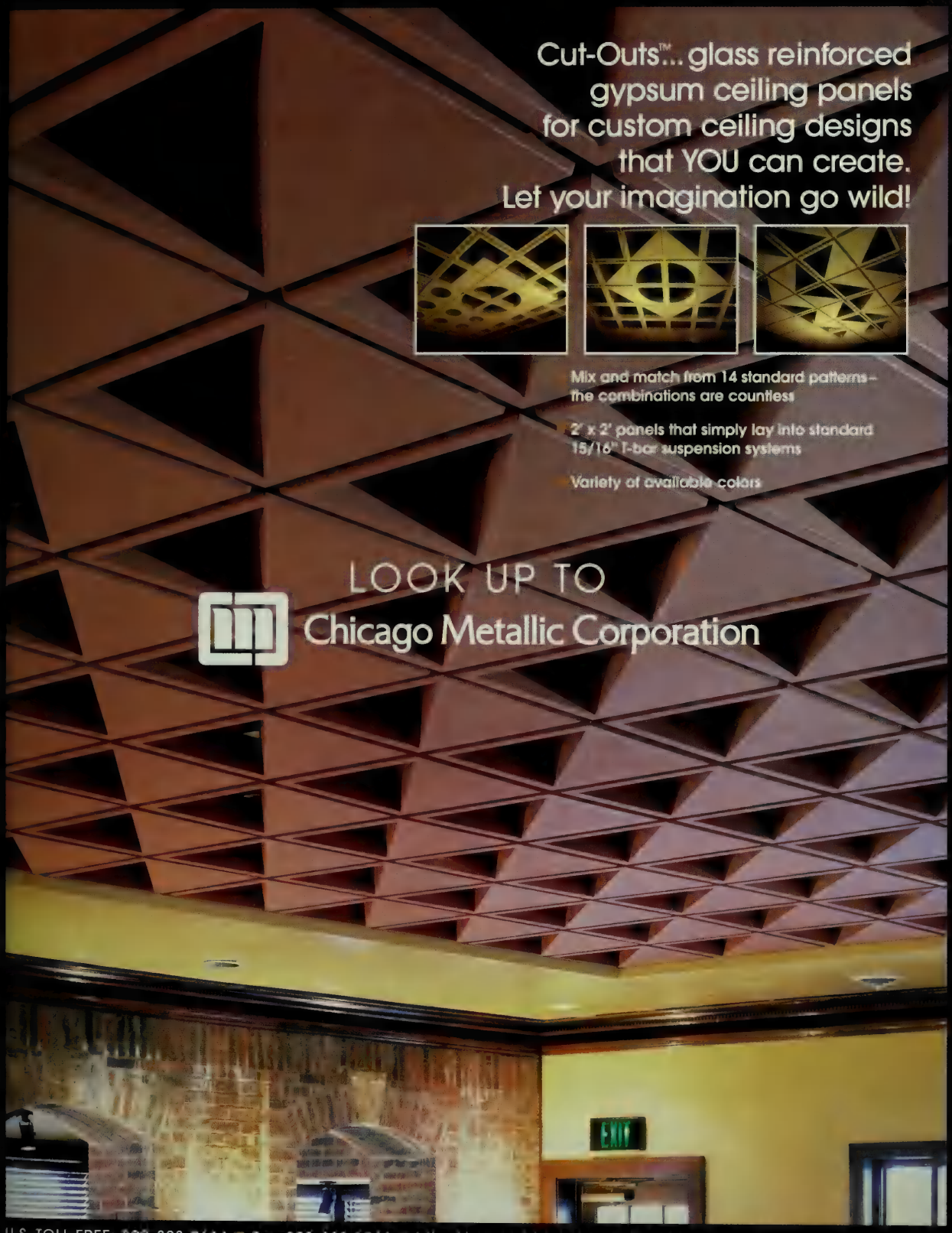
Roofing products
AlliedSignal's new brochure explains the ambient temperature process for commercial roof installations. 800/221-64
AlliedSignal, Cary, N.C. **CIRCLE 229**

Office systems
Panel Concepts demonstrates its TL2 stackable open office system in a new brochure. 714/433-3300. Panel Concepts, Santa Ana, Calif. **CIRCLE 230**

Lighting fixtures
Columbia Lighting's Express catalog in
cludes 80 new products as well as exi
ing offerings. 509/924-7000. Columbi
Lighting, Spokane, Wash. **CIRCLE 231**

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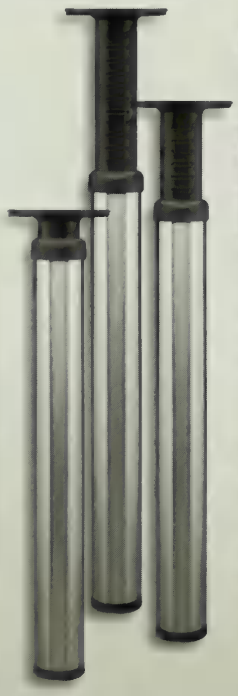
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PRODUCTLITERATURE



Reinforced concrete

A new report from the Concrete Reinforcing Steel Institute, titled "One-Way Concrete Joist Construction: Steel Lap Pan Forming System," describes one of the most efficient methods of reinforced-concrete construction. 847/517-1200. CRSI, Schaumburg, Ill. **CIRCLE 232**

Roofing solutions

Polycoat Systems is offering full-color literature highlighting the properties of Dow Corning's 3-5000 Silicone/Polyurethane Foam Roof System. 518/747-0654. Polycoat Systems, Hudson Falls, N.Y. **CIRCLE 233**

Video training for roofing

Firestone's video training program provides detailed instructions for installing the company's asphalt roofing systems. The program includes four comprehensive, step-by-step videotapes. 800/428-4442. Firestone, Carmel, Ind. **CIRCLE 234**

Forehearth coloring

Ferro's CD-ROM and full-color literature package highlight the options available to designers and glassmakers in coloring glass in the forehearth. The CD-ROM presents the manufacturing process in detail. 330/682-8015. Ferro, Orrville, Ohio. **CIRCLE 235**

Rotorvent chimney terminal

Chimney Cowl's trade catalog of flues terminals, and chimneys introduces the Rotorvent terminal, an addition to the company's Colt Cowl line. 011/44/19 738500. Chimney Cowls, Littlehampt U.K. **CIRCLE 236**

Permanent wood foundation

The Southern Pine Council presents a 50-page design and construction gui to using permanent wood foundation 504/361-1445. Southern Forest Prod ucts Association, Kenner, La. **CIRCLE**

Canadian construction code

The National Research Council's new CD-ROM contains the official version construction codes for Canada and Alberta. Developed by the NRC's Inst of Research in Construction, the CD-ROM is available for Macintosh or Windows. 613/993-2607. NRC, Ottaw Ont. **CIRCLE 238**



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HOW PLACES AFFECT PEOPLE *continued from page 81*

the mountains, crashing waves and rushing streams fill the atmosphere with negative ions—molecules of air that have picked up an electron and thus an electrical charge, which they try to shed. In contrast, positive ions, which have the opposite dynamic, abound in sealed-up, artificially electrified atmospheres, such as airplanes and discount superstores. Because many of us feel well in coastal or alpine settings and poorly in stuffy, manufactured ones, tonic and toxic effects have been attributed to negative and positive ions. Although some scientific studies support this theory, others don't.

The same uncertainty surrounds the much publicized, poorly understood effects of electromagnetic fields—zones charged by electrical and magnetic energy. Most research has concerned potential health risks of the artificial sort generated by power lines and appliances, but nature also creates electromagnetic fields, albeit weaker ones. Produced by the earth's core, the so-called geomagnetic field sets the compass and shields the earth from radiation from space. In some species, it also helps regulate migration and biological cycles, such as sleep.

Designers can use an awareness of the subtle environmental effects of special places—from the refreshing buzz produced by the ozone released from public fountains to the euphoria linked with high, brig cold places, such as ski resorts—to improve everyday settings. Not j altruism but healthy self-interest should motivate architects to follow emerging behavioral science of place.

Of the many contemporary changes in American society, on the most significant is a shift in the public's attitude toward once ver ated professionals. Government leaders, doctors, and lawyers are n likelier to be the butts of venomous jokes than subjects of encomiu This new skepticism has been assigned many explanations, from a di lusionment with authority dating to the Vietnam War and the Waterg scandal to a collapse of shared values.

Causes notwithstanding, the result is that Americans now ev uate professionals—including architects—with narrowed eyes, siler asking themselves, "Do this so-called expert's ideas jibe with my o experience of life?" If the answer is no, then the consumer will likely c clude that this professional isn't speaking to them, and engages neit their trust nor interest. Challenged to get real and get personal, archit who respond with designs that improve the quality of people's daily l will not only have more satisfied clients but will improve their professi public profile. ■

INTUMESCENT

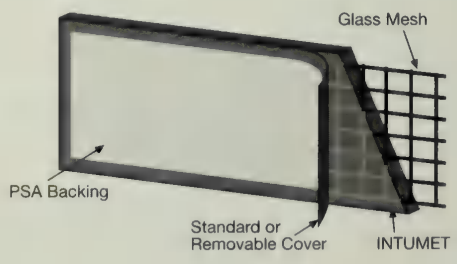
Glazing Tape

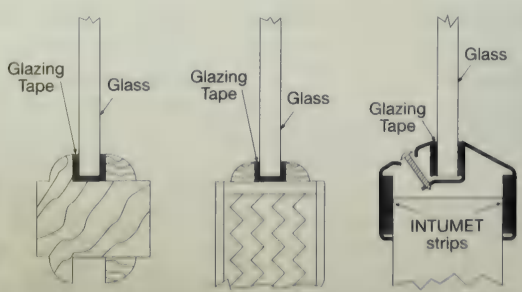
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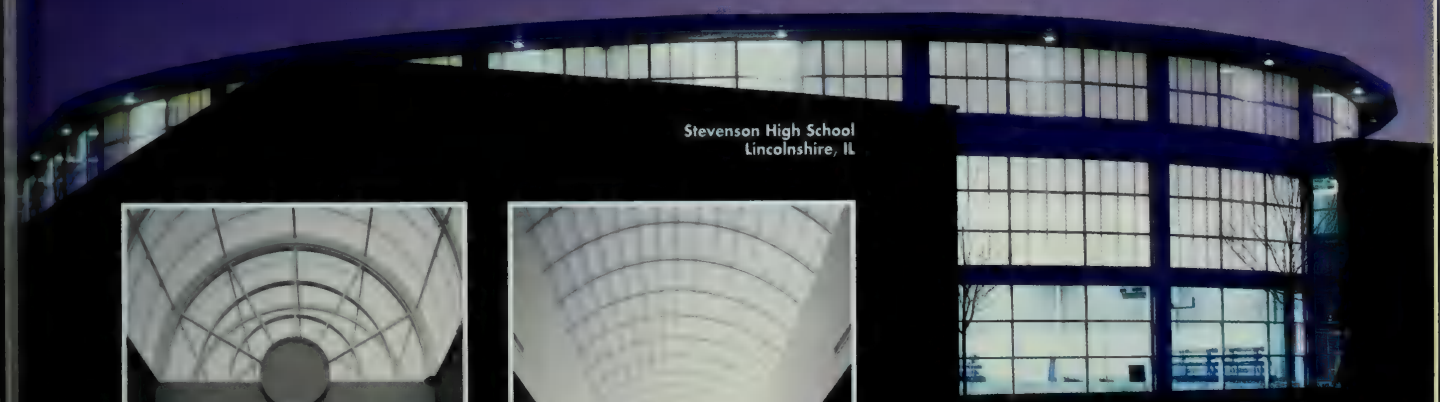
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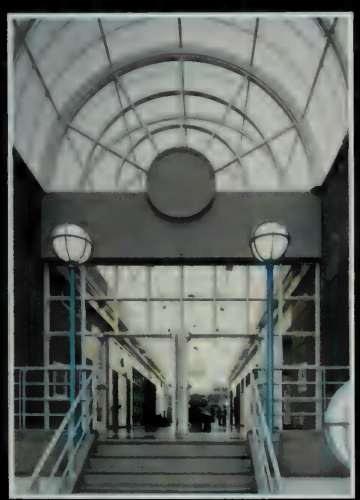
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ANSWERS

Questions appear on page 142. To receive CES credits, fill in the education reporting form below or at our Web site (www.archrecord.com).

1. In the 1960s, structures were planned in a functional, efficient, and straightforward way. They did not allow for the amenities expected and accessibility required today. Also, in the 1960s new materials were being used that were not adequately tested before installation. Their weaknesses have shown up after long exposure, particularly to extreme weather. Many of the problems with facade materials were also caused by their different coefficients of expansion which were not anticipated in the 1960s. But the design feature that is most challenging in retrofitting 1960s buildings is their low floor-to-floor heights. This limited clearance makes it difficult to modernize ductwork, pipes, cables, wiring, and lighting fixtures.

2. Early glass curtain walls relied on sealants to prevent water from penetrating at panel joints. Once the sealants deteriorated, there was seldom any continuous internal system to collect and divert water. The result was air and water infiltration. Other problems with curtain-wall construction were incompatibility of materials, leading to oxidation of key elements, and the use of single-pane glass, which led to energy problems.

3. Office building features demanded by the current market inclu large floor plates, large windows, a high level of finishes, a rectangul footprint, energy-efficient materials, inviting entrances, elevator alcove a mix of public spaces, an office layout that allows for some distinctio in spaces, ample circulation space, large accessible bathrooms, use friendly fixtures and hardware, and ample floor-to-floor height.

4. New heating/cooling systems are designed to be more efficient an environmentally friendly and to take advantage of the natural env ronment. Old systems used ozone-depleting refrigerant, but new ai conditioning uses different refrigerants and often features an economiz cycle to take advantage of naturally cool air—outdoor air is drawn in the air handler in the winter to cool the building's interior. New systen allow for individual control so that systems are used only when necessa instead of continuously. Water boilers are now 85 percent efficient, opposed to the 70-percent-efficient steam boilers formerly used. There more emphasis on energy-efficient materials; low-E glazing, for instanc is now specified on most buildings. Attention to the site's solar and wi implications is also a typical program requirement now.

5. Many of the innovative and often experimental materials used early modern architecture had inherently short life spans. In additio the original skins of the buildings are easy to remove, so they are oft replaced with a contemporary facade.

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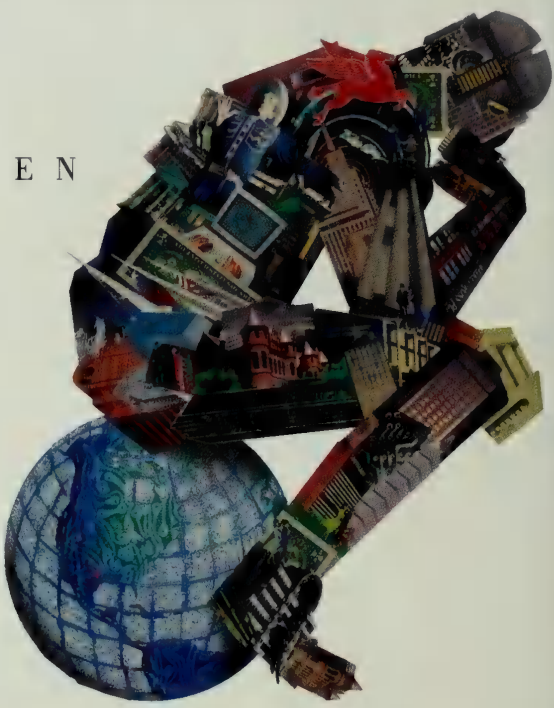
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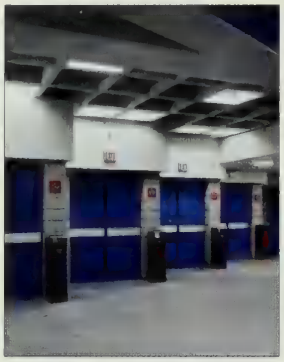
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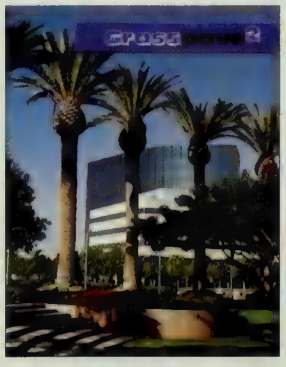


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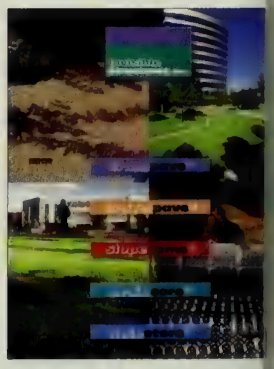


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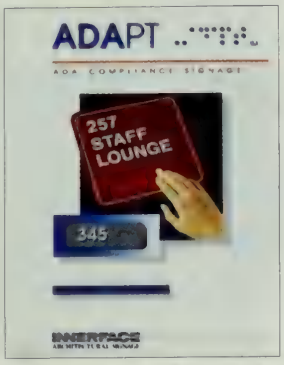


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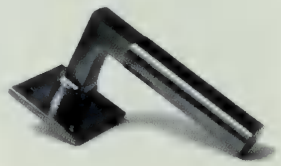


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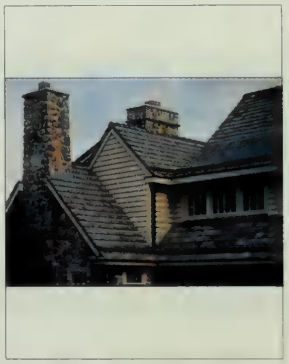


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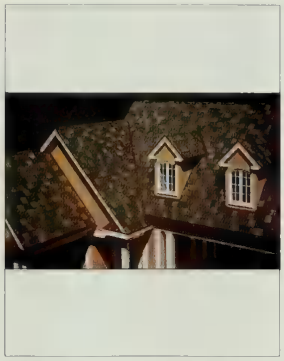


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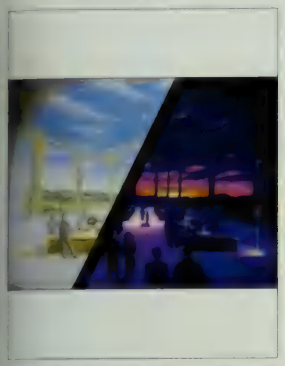
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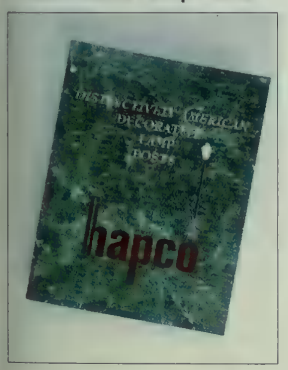


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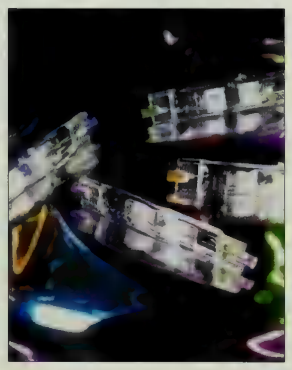


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THE FUTURE By 2010, we may face another energy crisis that architects can help solve.

BY KIRA L. GOULD



It's an odd time to be a fossil fuel doomsayer. For several years, consumers have been enjoying record-low oil prices, which have helped fuel the current economic boom as well as the millions of big new cars on American roads. And even as our oil use has risen, so have reserves. But some economists and scientists warn that this glut will come to an end, perhaps before too long. Last March, *Scientific American* devoted a special issue to "The End of Cheap Oil," warning of a permanent shortage by 2010. Observers such as Donald Aitken of the Union of Concerned Scientists say an energy crisis is likely within a decade.

During the last crisis, in the 1970s, Americans began to embrace alternative technologies; around the country, houses sprung (clunky) solar panels on their roofs. Today, though, there are few visible efforts at alternative energy production. And Americans, softened by two decades of petroleum plenty, lag far behind Europe and Japan in recognizing the relationship between architectural design and energy consumption. When the price of oil does rise again, designers who know how to use energy-efficient and energy-producing technologies will be in demand.

Photovoltaic (PV) cells, one such technology, generate electricity by harvesting sunlight. The cells are made of several layers of light-sensitive silicon; electrons, excited by light, pass from the top, electron-rich face to the electron-deficient bottom, forming a direct current of electricity. (That current can be converted to AC for larger applications.) Cells are now built into modules that mimic traditional building materials. A PV module meant for curtain-wall use, for example, consists of cells laminated behind a sheet of clear tempered glass and an aluminum frame for easy installation. Once in place, the PV modules are often indistinguishable from other building components.



PV cells took center stage at a recent exhibition and conference at the Cooper-Hewitt National Design Museum in New York City. The show, "Under the Sun: An Outdoor Exhibition of Light," and the symposium it spurred, "The Solar Conference: Design, Business and Power," set out to show how architects (whose product—buildings—account for 40 percent of energy use in the United States) can lead the country beyond dependence on nonrenewable energy sources.

The most compelling object in the Cooper-Hewitt show was the Solar-Powered Glass Pavilion (above and below). Designed by Gregory Kiss and Nicholas Goldsmith, its multiple PV modules and clear glass panels create the structure and generate enough electricity to power its ventilation system and lighting. Gregory Kiss, a principal with Kiss + Cathcart Architects, has been working on the integration of PVs in architecture for 15 years.

The most recent and visible of these projects is 4 Times Square, a new office building now under construction on New York's 42nd Street. Two 60-foot-wide swaths of custom-designed PV panels are being integrated into the east- and south-facing curtain walls on the upper 19 floors. The PVs on this structure will function as a demonstration project and headline-grabber. Because there are so few panels, they will provide only a tiny fraction of the building's energy needs, about enough to support five or six homes. But even a test case—especially one on a spec building in midtown Manhattan—is a dramatic step.

Kiss says there are two things holding back PV technology in America: ignorance of what's available, and the inherent conservatism of the building industry. "The technical and economic thresholds of viability were crossed five years ago," he says. "Now we need to educate architects and developers."

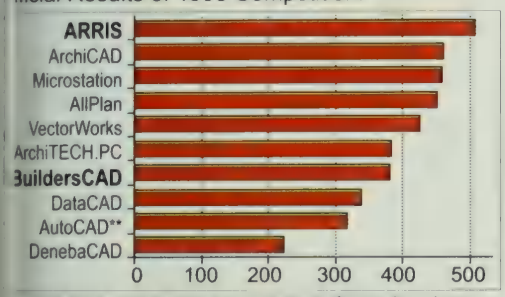
PV electricity is still somewhat more expensive than grid power, though prices are expected to decline as refinements and innovations continue. Most observers believe that even without a rise in petroleum prices, solar power will soon be cheaper than grid power in most parts of the United States.

But there's more to this than just saving energy (and money) over the life of a building. PV technology is an opportunity to move beyond making energy-efficient buildings to making energy-producing structures. The average office building uses approximately five watts of electricity per square foot. Today's PV modules can yield five to 15 watts per square foot of roof area, enough to power one to three floors during peak sun. More efficient structures, using only two or three watts per square foot, could actually export energy to the grid. Using skin-integrated PV modules now available, office towers such as 4 Times Square could generate 30 to 40 percent of their required energy. In just a few years, such buildings could produce even more of their own energy, reducing dangerous peak demands on grid power. And they would do so using a solid-state, silent, maintenance-free technology that never wears out and runs on the cleanest energy source around. ■

Kira L. Gould, Assoc. AIA, is a freelance writer living in New York City.

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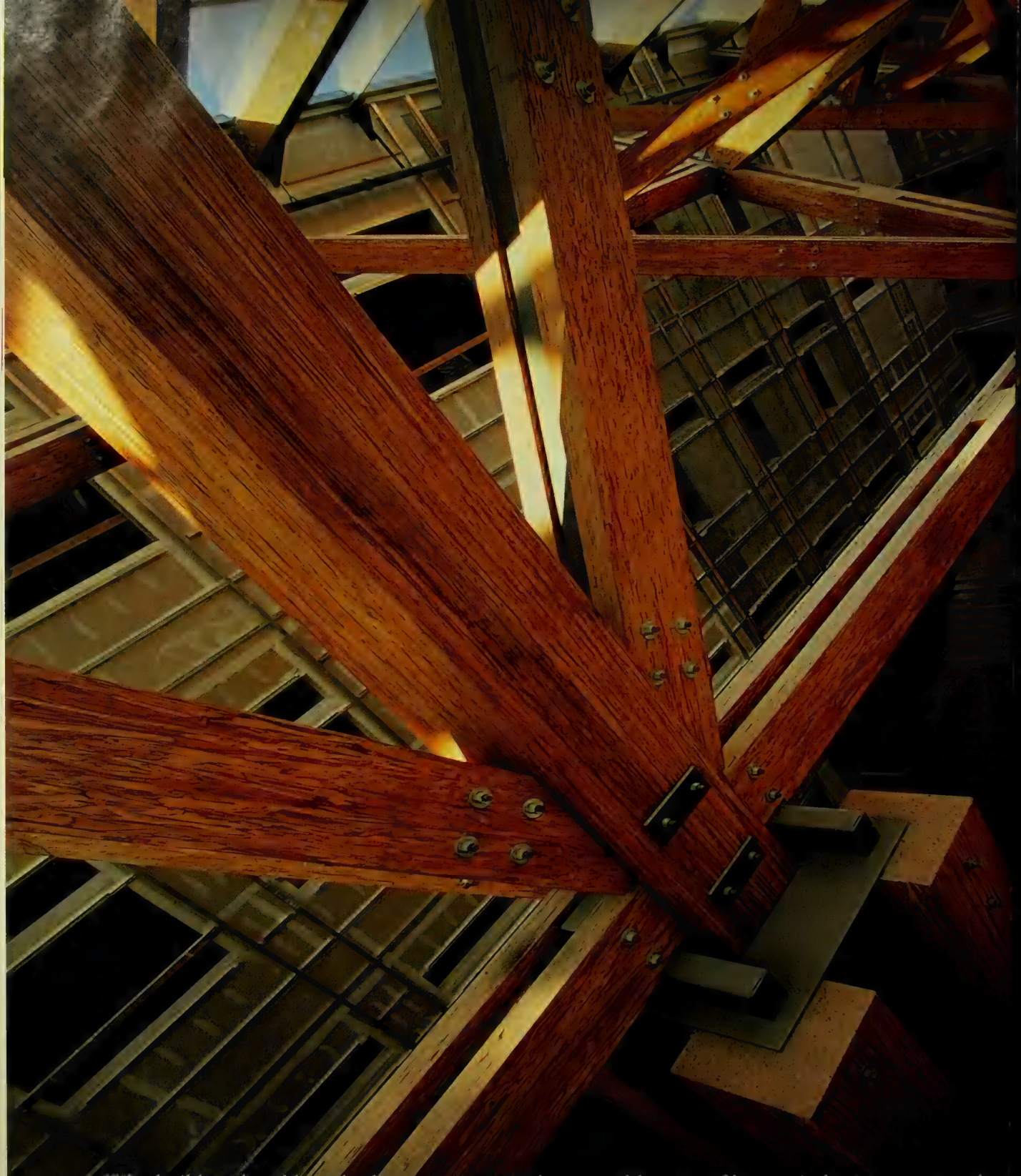
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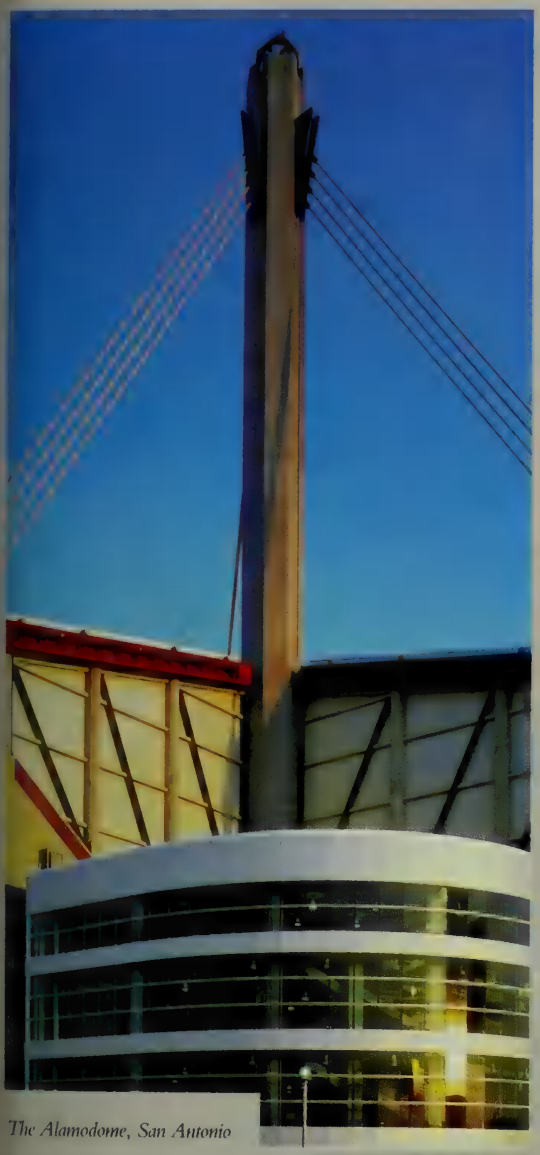
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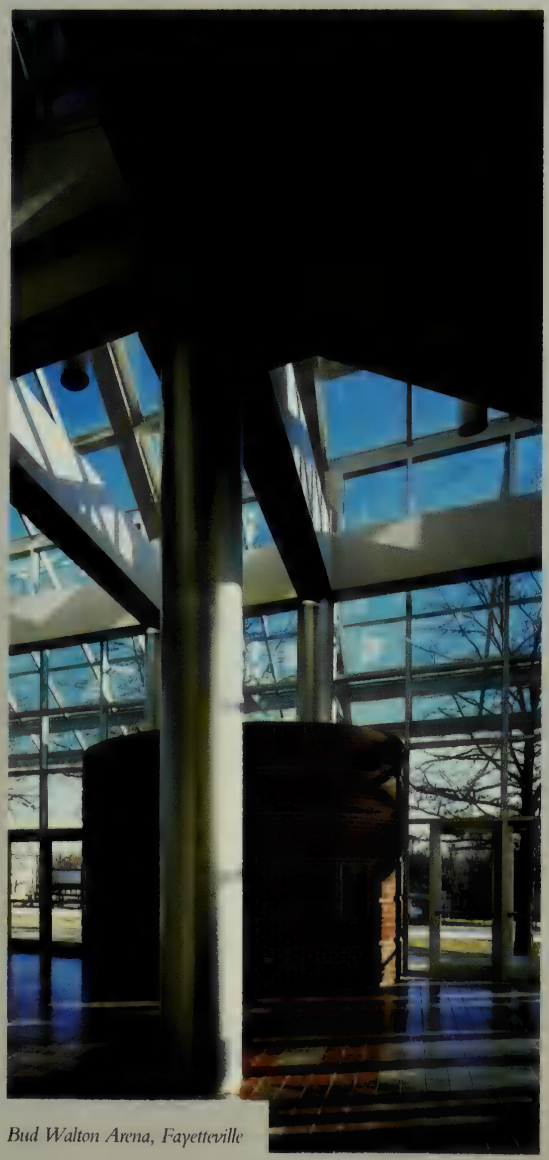
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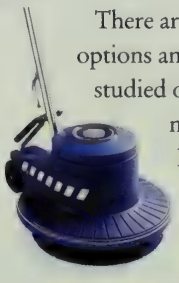
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CIRCLE 9 ON INQUIRY CARD



EDITORIAL

The British Are Coming!

BY ROBERT IVY, FAIA

Britain is flowering. Not only are the willows greening up, but a bold architecture is erupting—one that springs from the ancient soil—with positive implications for world architecture. It is an expression of British culture at a moment when e encumbrances of empire, the dead weight of all that dreary responsibility, ıve been swept away, replaced by lively new hegemonies of language, Anglo- ıerican commerce, and architectural cool.

You find examples of energetic new design in the oddest places: a rge shed in a railyard, glimpsed from a speeding train; a new corporate tower, ound the corner from an 18th-century club; sleek airports set into cattle- ewn meadowland; an unexpected tube stop, scooping up onto the sidewalk :e a vermiform skin in the movie Dune. *Counterpoised against the familiar ıes of town and countryside, these arresting new buildings create striking sparities. What force is shaking up the sceptered isle?*

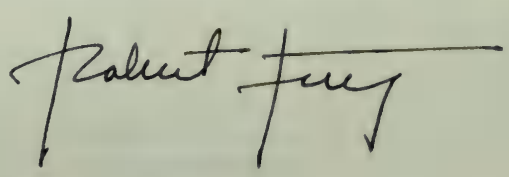
Call it a techno-modern revolution. You've seen the early examples the first wave, even if you can't recall all the names—Norman Foster, chard Rogers, Michael Hopkins, and all their progeny, the influential gen- ation whose individual members dared to conceive the Lloyds of London wer, the Hongkong and Shanghai Bank, and a brace of other structures at still challenge the status quo: prickly monuments to flash and flush times ıd unbridled optimism.

The next wave, perhaps tempered by the vagaries of the market- ace and chastened by the realities of maintaining overly complicated pipes ıd struts on their earlier technologically driven designs, has been producing novative contemporary work on its own, work that builds on the earlier asters' legacy. Architects like Chris Wilkinson, Nicholas Grimshaw, John cAslan (featured in this issue, page 94), and Ian Ritchie are building new ructures, both at home and abroad, that push the limits of materials, par- ıularly glass and steel. They ask the universal questions: What are the ıique qualities of glass (its transparency or opacity or chroma)? How can steel, a tensile material, stretch to support it? Their work is sometimes experimental, often innovative.

Engineers' hands are all over the work. They have collaborated with and inspired the current generation of architects, encouraging free-ranging structures with unapologetic wide spans and cantilevered stairs and minimally supported, heroic glazed membranes. The result is an architecture of carefully detailed solutions, not irony; design that is not precious, but honed. And despite the employment of energy-intensive construction materials, most techno projects reflect the larger European culture's concern for energy conservation.

What can American architects learn from their Anglo brothers and sisters? The Illinois Institute of Technology will explore this new wave at an international symposium, purported to be the first of its type, entitled "Architecture with Technology," on April 8–10 in Chicago. As the conference organizers, professor Peter Land and dean of the college of architecture Donna Robertson, point out, universities and architectural firms in the United States have served as a training ground for key participants (both Foster and Rogers studied under Paul Rudolph at Yale); moreover, in the 1950s this country was home to architects like Buckminster Fuller who were seminal to the movement.

Back to the future? Perhaps. But rather than merely react to the past, the British are currently producing an exciting architecture that takes a strong position. For American architects in 1999 looking for new sources of energy and ideas, contemporary British architecture may shake us up and encourage us to design with equal conviction, lending fresh appreciation to the cry, "The British are coming! The British are coming!"



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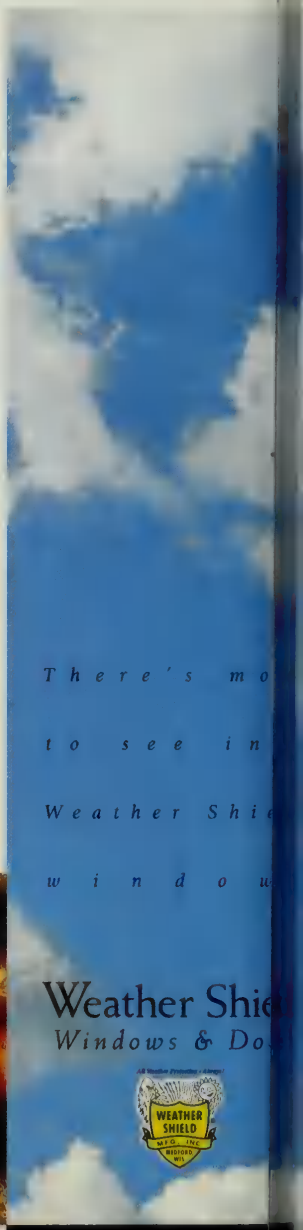
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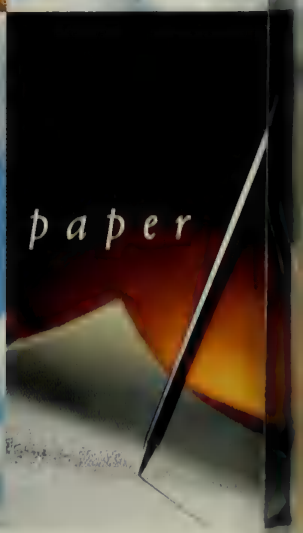
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CIRCLE 11 ON INQUIRY CARD

LETTERS

Production housing

I have to take exception to Mitchell Rouda's recent article, "Production Housing: Houses as Products" [January, page 115]. Having spent most of my career designing "affordable custom" houses for single clients and for the last 15 years teaching a summer course at the Harvard Graduate School of Design on the same topic, I think I can speak with some authority on the matter—at least from the architect's point of view.

Without exception, I've never met an architect who hasn't wanted to enter the production housing market. But that leap is not as easy as Mr. Rouda proposes. The old adage that it takes a good client to make good architecture is even truer in the production housing arena. It is simply naive to anticipate the day when "buyers browse through home styles on a computer" and "manipulate each house in a hundred ways." We deserve what we get in the single-family home, not because of architects but because design is not taken seriously in our educational system and money is the bottom line in the marketplace.

—Jeremiah Eck, FAIA
Jeremiah Eck Architects, Inc.
Boston

The truth about HVAC

In "Building Comfort with Less HVAC" [December, page 131], the statement that the Inland Revenue Centre's "prefabricated concrete floor panels provide 'cathedral effect' radiant cooling" is in error. All the floors in this building are carpeted and raised, with pop-out lightweight panels to provide access to services. Thus, they contribute little to radiant cooling. It is the heavyweight concrete ceiling that is the basis of radiant comfort. And heating is more of an issue than cooling in the Nottingham climate, especially for this building program of an open plan with separate environmental controls for sets of work stations. Indeed, the integration of ventilation with comfort is a much more demanding performance requirement than cooling.

Unfortunately, recognition of climate seems absent from this article. Nottingham has an ideal climate for low energy displacement ventilation—the critical concept not described. Site climate has more impact and is more inclusive than "solar load." Similarly, the variable impacts of building type and user patterns are largely ignored.

Yes, the routine practice of oversizing cooling plants in the U.S.A. is a serious professional irresponsibility. But an article presented for AIA Continuing Education should be more accurate and balanced.

—Jeffrey Cook, AIA
Regents' Professor
College of Architecture and Environmental Design
Arizona State University
Tempe, Arizona

A solution to sprawl

In response to Robert Ivy's January editorial ["Standing Up to Sprawl," page 15], one solution to urban sprawl is to join the Forum on Small Town Economic Renewal. As an individual, you can support important measures that will take the pressure off the big cities and help small towns. This way the economy can grow at a 3 percent annual growth rate (if the government allows) and still make a bigger impact for smart growth. The big cities will prosper too because the small towns need their expertise and manpower—and capital. There will be less stress on people and the environment if we work together from the beginning.

In small towns, fewer obstacles to smart growth are in place. The infrastructure is not there yet. The land owners, usually farmers and ranchers, need new ways to improve their economy. Today, many businesses can be located almost anywhere—it's just a matter of choice.

But rather than beg New Yorkers to go someplace they may not be happy, I would propose teaching small town residents and their kids new skills to start their own businesses. Then make the small community a world-class place that people can dream about. That's where architects come in: they can help make these communities desirable for talented people who might want to move there, as well as for existing families who might stay put instead of moving to the big city.

Let's work together on a long-term plan that will benefit everyone. If America grows faster and smarter, the rest of the world's economic problems will be eased.

—Jeff Baston
via E-mail

Misunderstanding Montreal

My elation at finding a report on Montreal in your December issue (Correspondent's File, page 31) waned after I encountered several misunderstandings concerning my dear French Canadian city.

Contrary to Beth Kapusta's account, Montreal architects *have* in fact had it unimaginably bad in the last decade. It is precisely the lack of large-scale civic contracts that forced many—including myself—to find work elsewhere, as well as to reflect on things a little, facilitating the development of a mature Modernist ethic, which is now proliferating here.

It is an all too obvious proposition to attempt to link the inconspicuous nature of these architectural interventions with an uncertain political climate; however, this remains an unsubstantiated thesis, indicative of a general media hype surrounding the province of Quebec. In spite of everything, Montreal presents an intriguing scene for those who appreciate not being hit over the head—an oeuvre of which I am not defensive but, rather, proud.

—Eric Majer
via E-mail

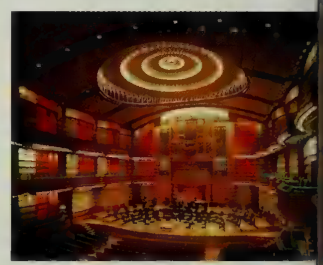
Credits/Corrections

Landry & Bogan, Theatre Consultants, were responsible for the stagehouse, auditorium house lighting, and acoustic gallery design of Royce Hall (November, page 82).

Architect Gyo Obata's name was misspelled in a January news story on the Japanese American National Museum (page 50).

Usman Haque was part of the team working with Claire Weisz Architect + Mark Yoes on the Visitors Center for the Museum of Jewish Heritage in New York (January, page 105).

Arthur Rosenblatt, FAIA, was the first director of the U.S. Holocaust Memorial Museum, not Shaike Weinberg, as stated in the January story on the Jewish Museum (page 76).



The team working on Dewan Filharmonik Petronas (above), part of Petronas Towers (January, page 92), included acoustic consultant Kirkegaard and Associates, theater design consultant Theatre Projects Consultants Inc., and lighting consultant Howard Brandston & Partners. The pipe organ was fabricated by Orgelbau Klais Bonn.

In the caption on page 41 of the January issue, both Elkus/Manfredi Architects and NBBJ should have received credit for the design of Pacific Place.

The top photograph on page 100 of the February issue was misidentified. It looks toward the entrance lobby of Tadao Ando's TOTO Seminar House from a lounge at the base of the main stair.

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CIRCLE 12 ON INQUIRY CARD

SPEAK OUT Designing for accessibility doesn't have to be expensive or complex. It can be easily accomplished right now.

MICHAEL J. CROSBIE AND PETER A. STRATTON

Michael J. Crosbie and Peter A. Stratton are associates at Steven Winter Associates, an architectural research and consulting firm in Norwalk, Connecticut. Stratton is also executive director of the Association for Safe and Accessible Products (ASAP).





As architects who research accessible design (or what we prefer to call universal design), we were invigorated recently by an exhibition at the Cooper-Hewitt National Design Museum in New York. "Unlimited By Design" (on view through March 21) brings together a range of everyday objects for home and work specifically designed for people with disabilities—particularly impairments that limit mobility, sight, and hearing. It includes a futuristic kitchen, produced by a team of faculty and students at the Rhode Island School of Design, that was meticulously designed for ease of use by everyone, young and old, no matter what their abilities. That's the essence of universal design.

But the kitchen—as well as the exhibition in general—also communicates notions to designers and to the public that oppose the goals of universal design, although we're sure this wasn't the intention of the curators. These misperceptions are widely held, and clarification is needed.

One faulty assumption is that universal design is experimental. Many of the specialty products exhibited have a "Jetsons" feel to them, which lulls viewers into the comfortable notion that this is not an issue we need to deal with right now. "Someday," you may catch yourself thinking, "all kitchens will be accessible." But the truth is that all kitchens could be accessible today.

A plethora of simple products already on the market, if used intelligently, could dramatically enhance the accessibility of many projects. For example, standard countertops can be installed lower than the usual 36-inch height. Lower counters without base cabinets provide a roll-under work surface for people who use wheelchairs, for users who are otherwise mobility impaired and prefer to work in a seated position, and for children.

Dishwashers installed on platforms are more comfortable to use for those with back impairments because the bending required for access is minimized. Counters with contrasting color edges provide a cue to people with low vision. Open shelving or glass doorfronts are helpful to people with cognitive difficulties who tend to forget where they put things.

Another troubling aspect of the exhibition is that many of the items, particularly in the kitchen, look expensive. It is a myth that accessibility is a budget buster—a myth that home builders routinely use to ignore the accessibility provisions of the Fair Housing Act.

The Americans With Disabilities Act (ADA) requires that public buildings meet certain standards for accessibility. Its enactment in 1990 caused fears that costs would rise quickly. But a few years ago, a study undertaken by our firm for the Department of Housing and Urban Development to calculate the added cost of accessibility found that accessible design and construction added very little to the cost of housing projects (only about 0.5 percent in many cases). Universal design is not a couture branch of architecture.

In universal design, context is everything. Choosing the right equipment is only part of the solution. The most common errors made in architects' plans result from their belief that all you need to do is provide an accessible fixture—problem solved. But how that fixture exists in relation to the walls, the floor around it, and other fixtures determines whether it is truly accessible or not.

For instance, there are recommended clearances for the areas surrounding toilets, sinks, and tubs to allow access by people with physical disabilities. Just providing a toilet with an adjustable-height seat for example, does not ensure that a person using a wheelchair will be able to enter the bathroom and to approach and use the accessible fixture. Among other considerations, doors must be wide enough for easy entry and door swings shouldn't infringe on clear floor space.

We commend the exhibition curators and the museum for publicizing the issue of accessibility. But remember: universal design does not belong to tomorrow. It is something that architects can and should be accomplishing today. ■

Contributions: *If you would like to express your opinion in this column, please send submissions by mail (with a disk) to Speak Out, Architectural Record, Two Penn Plaza, New York, N.Y. 10121; by fax to 212/904-4256; or by E-mail by visiting www.archrecord.com and clicking on News/Features/ Dialogue. Essays must not exceed 700 words. The editors reserve the right to edit for space and clarity. Where substantial editing occurs, the author will receive text approval.*

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CIRCLE 13 ON INQUIRY CARD

MENTORS Distance learning is a viable option for architects looking to broaden their education while continuing to work.

Paul Saltman is president of Kennedy-Western University in Cheyenne, Wyoming. The distance-learning school is licensed by the State of Wyoming Department of Education.



The Internet is a now a standard tool of architectural practice. Cyberspace can also be utilized for continuing education—though most architects aren't fully aware of the opportunities. RECORD asked Paul Saltman of Kennedy-Western University to offer a primer for those interested in taking part in "distance learning."

A recent survey of architects by the AIA determined that 90 percent of firms with 10 or more employees are connected to the Internet. Practitioners are setting up project Web sites and using E-mail to transmit drawings. And, increasingly, architects are looking to the Internet to fulfill their continuing education needs.

Typically, those architects exploring the World Wide Web have quite specific course interests, such as construction contract administration or project administration, or are seeking updates on new and sensitive issues, such as sustainability. Many of these courses are readily accessible through the AIA Online Network.

But beyond that, the growing phenomenon of distance learning offers an educational venue—one that entails full course loads, not just specific-issue updates—that many architects haven't latched onto. Distance learning is conducted by a virtual school—no campus and no classroom time. Students typically interact with professors via the Internet or by phone and fax, allowing them to more easily balance their careers with a continuing education program.

Many prestigious, traditional schools—such as Harvard University and New York University—offer distance learning for selected courses. However, the day when a student can obtain a bachelor's degree in architecture from a virtual university is still in the future.

Nevertheless, some practical needs—most significantly, an MBA to enhance one's management credentials—can be met by a number of "distance schools"; degree-granting distance-learning options are not hard to find. The place to start looking, fittingly, is the Internet. Go to any major search engine on the Web, type in "distance learning," and the potential choices will cascade into view.

A big step was taken in January, when the newGraduate School of Architecture opened its virtual doors. This institution (found at www.newgraduate.org) offers holders of accredited architecture degrees a way to earn nonprofessional master of architecture degrees over the Internet for the first time (see RECORD, December 1998, page 36).

If earning a degree over the Internet intrigues you, start by finding out whether a particular school that catches your eye is sanctioned by a reputable third party. Although less common than accredited traditional universities, there are a number of distance schools that have been state-licensed or accredited by one of the nation's six regional accrediting bodies. If a distance-learning institution can't claim one or the other of these qualifications, keep looking.

Choosing a distance-learning center then comes down to the basic issues of the curricula offered and the quality of the academic staff. Check the credentials and the résumés of the faculty in your chosen course area. As for curricula, does the virtual school in question offer up-to-date and meaningful courses? Are they relevant to your career? Check to see whether the university offers more than a few token choices in your field of interest. The opinions of your peers are essential, so ask to talk to former students in your degree area.

A self-paced or self-structured environment can also be beneficial. The self-paced approach—as opposed to the typically strict schedule of a traditional school—often works best for those whose time is limited because it presents the option of accelerating or decelerating the rate of study and completion of a degree. The time it takes to get a degree can range from 18 months to as long as five years. Tuitions are equally diverse.

Considering the many options, the most important thing about enrolling in a virtual university is doing a lot of homework first. ■

Questions: *If you have a question about your career, professional ethics, the law, or any other facet of architecture, design, and construction, please send submissions by mail to Mentors, Architectural Record, Two Penn Plaza, New York, N.Y. 10121; by fax to 212/904-4256; or by E-mail by visiting www.archrecord.com and clicking on News/Features/Dialogue. Submissions may be edited for space and clarity.*



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PULSE RECORD readers were asked: What do you think of Daniel Libeskind's new Jewish Museum in Berlin?

I toured the building last summer, and you must see it to appreciate it. The interior is alarming and disturbing, an important experience for non-Jews. The exterior is designed as if cut by a large chain saw. It will be a challenge for exhibits. The tower and garden are impressive and powerful. It's a must-see for architects.
—Robert Varnes, AIA
Robert L. Varnes & Associates
Naperville, Ill.

It is a highly sensitive design that delivers a strong social message and relates in scale to its urban environment. The exterior glazed wall openings, like prominent wounds, are incised tracery that echo the zigzag floor plan.

Although the Libeskind scheme evokes strong emotions about the derangement of man in historical events, it nevertheless should create great interest in Jewish history for casual observer and scholar alike.
—George W. Sinnott, AIA
Oakland, Calif.

After touring the museum this past summer, I have been in awe. I can't get the feeling of inspiration from experiencing such a magnificent space out of my mind. In my opinion, that's what architecture is all about.
—Mariah Young
David Milling & Associates
Ann Arbor, Mich.

The Jewish Museum represents what I call architecture of the moment. With its massive form and diagonal penetrations, it is striking, to say the least. However, I question its appropriateness to a subject that will haunt mankind for an eternity. Libeskind's attempt to incorporate historical elements such as the Star of David look fascinating as a diagram, but I fail to see how the user can identify with them when they are hidden within these skewed walls.
—Doug Pearl
Hardy Holzman Pfeiffer Associates
New York City

I don't understand it. Its purpose may be more clear when exhibits are installed.
—Leah Karpen
Asheville, N.C.

The Jewish Museum is a testament to the mysteries of the human soul. It is resolutely, breathtakingly, insistently forceful in design and in relationship to the place and the community. So eloquent is Libeskind's vision that visitors must inevitably experience the museum as the architect intended, rather than as administrators, curators, or critics might imagine or desire.
—Carole Rifkind
Author, A Field Guide to Contemporary American Architecture
New York City

I will try to keep an open mind until I visit, but this type of architecture frightens me. It seems to bludgeon the visitor with a single idea. If the conceptual narrative drops away, does the architecture have anything to say? If you "get it" or have been properly indoctrinated, the architect is relieved of the need for architectural skills to convey an idea and the visitors are relieved of the need to think for themselves.
—Stephen Varenhorst
Stephen Varenhorst Architects
Conshohocken, Pa.

This Month's Question

Can architecture's power to affect human behavior be quantified?

Environmental psychology is proving statistically what architects have understood intuitively. In "How Places Affect People" (February, page 74), Winifred Gallagher writes that good architecture can improve our mood as well as our creativity and productivity; conversely, bad environments can act as depressants. She goes so far as to assert the following: "Just as [architects] have thought of themselves as artists and builders . . . they now have the option of seeing themselves as healers of a kind, who prescribe design rather than drugs."

Can architecture's power to affect human behavior be quantified? ☐ Yes ☐ No

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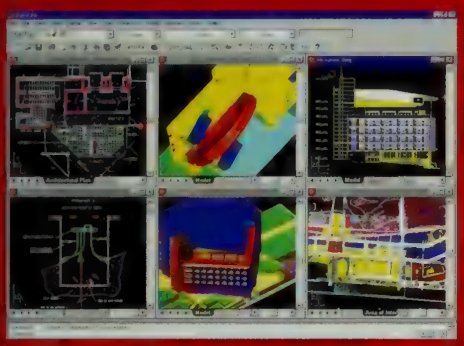
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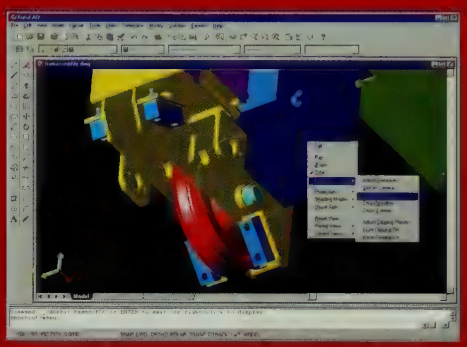
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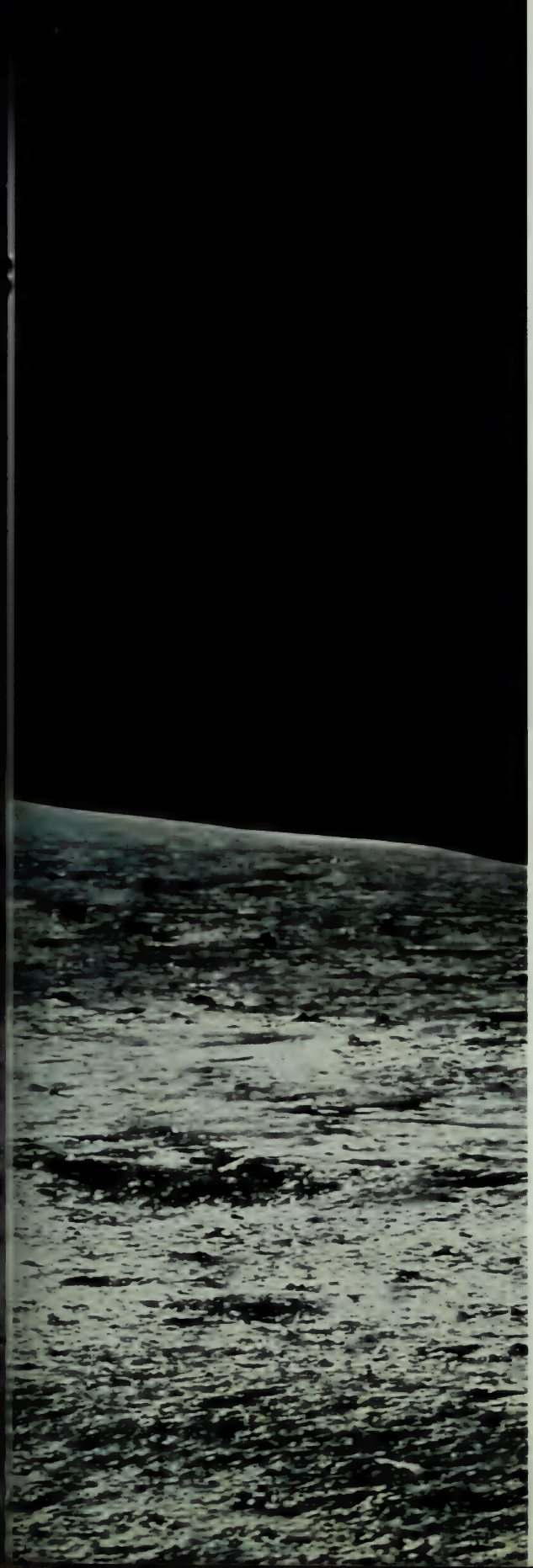
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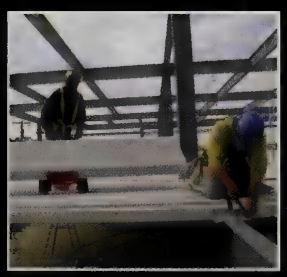
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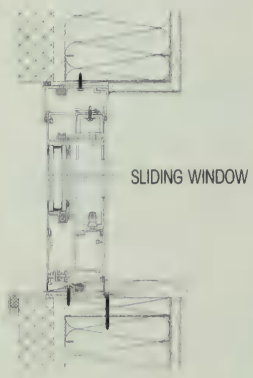
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CRITIQUE The Era of the E-topia: the right reactions to the digital revolution can produce lean and green cities.

BY WILLIAM J. MITCHELL

echnology is changing the way we ve and work, and the changes are s momentous for architects as for lients in business and government. igital advances have already ltered the way buildings function nd look and the way designers ractice their profession; the exact rchitectural forms that will result om further developments are hard pin down, even for the near iture. But as William Mitchell sug- ests in the following essay, the xplosion of on-line shopping, bank- g, and schooling, along with elecommuting, will continue to pro- oundly affect the details of design nd the shape of our communities.
–Andrea Oppenheimer Dean

ustainable cities? Of course! Who could seriously argue for the lternative? But the shopworn trategies of moralistic exhortation, ndless regulation, bicycle fetishiza- on, and well-intentioned tinkering ith material choices and energy ystems will not get us there. We ust be more radical. We must cre- te e-topias: lean, green, electron- ally serviced, globally connected ities that work smarter, not harder.

Today's inexpensive and ubiqui- ous digital telecommunication and omputation systems provide the ey. If we use them cleverly, they will elp us to do far more with much less. The new electronic systems will allow us to extend the definitions of architecture and urban design to include virtual places as well as physical ones, software in addition to hardware, and interconnection by means of telecommunication links as well as physical proximity and transportation systems. And we must recognize that the fundamental web of relationships among homes, workplaces, and sources of everyday supplies and services—the very glue that holds cities together—may now be formed in new and unorthodox ways.

Here, then, are five starting points for a cyber-sustainable architecture:

1. *Dematerialization.* When a virtual facility, such as an electronic home banking system, replaces a physical one, such as a branch bank, there is a net dematerialization effect. We no longer have a need for so much physical construction, and we no longer have to heat and cool it.

There are analogous benefits when we separate information from its traditional material substrates. For example, an E-mail message does not consume paper. Furthermore, if you replace a material artifact, such as a message on paper, with a dematerialized equivalent like an E-mail, you are left with no waste to be managed. A used bit is not a pollutant.

If you want a glimpse into the cyber-sustainable future, imagine the growing competition between the material and the virtual being played out by resourceful protagonists who are aware of their comparative advantages. The local bookstore versus Amazon.com? The supermarket versus Internet grocery shopping and home delivery? Dilbert cubicle-farms versus telework from home offices? Princeton University versus a distance-learning center? Lining up at the Department of Motor Vehicles versus renewing your driver's license on-line? The outcomes, of course, will vary. But we will increasingly find ourselves asking the fundamental questions: "Is this building really necessary? Can we wholly or partially substitute electronic systems instead?"

2. *Demobilization.* We also conserve resources whenever we wholly or partially substitute telecommunication for transportation. In general, moving bits is far more efficient than moving people and goods. The savings show up in reduced fuel consumption, pollution, vehicle manufacture and maintenance, land lost to transportation infrastructure, and time lost to commuting.

We should not, however, look for simple, direct substitutions; the interactions between telecommunication and travel are too complex and subtle. Instead, we should take advantage of advanced telecommunications to help create new, more





Traditional building types—for example, bookstores like San Francisco's City Lights (left)—might wane as electronically based businesses like Amazon.com (warehouse above) take over the retail landscape.

William J. Mitchell is professor of architecture, media arts and sciences and dean of the school of architecture and planning at MIT. His latest book, E-Topia: Urban Life, Jim—But Not As We Know It, will be published by MIT Press this year.

compact urban settlement patterns that reduce travel distances and encourage more pedestrian and bicycle movement and significantly less automobile transportation. Specifically, if the industrial-era separation of home and workplace produced the long, wasteful commute, then neighborhoods of wired live/work dwellings promise to shorten or even eliminate it. And while centralized services required travel to obtain access, electronic distribution does not: downloading a movie, for example, makes a trip to the video store unnecessary.

One promising strategy, then, is to develop polycentric cities composed of compact, multifunctional, pedestrian-scale neighborhoods interconnected by efficient transportation and telecommunication systems. By once again linking homes, workplaces, and service facilities in this way, we can effectively pursue a sustainable balance of local pedestrian movement, node-to-node mechanized travel, and global telecommunication.

3. *Mass customization.* The dumb machines of the industrial era gave us economies of standardization, repetition, and mass production, but the smart machines of the computer era can provide economies of intelligent adaptation and mass customization. We can employ silicon and software on a massive scale to custom-deliver only what is required in particular contexts, and no more.

On any given morning, for example, you are unlikely to read all the pages of your newspaper. An electronically delivered, home-printed, personalized newspaper system can use a profile of your interests to select and print only those articles and advertisements that you are likely to want to read. This strategy gobbles fewer trees and produces less waste.

Similarly, most of the time your car just sits in garages and parking lots, tying up valuable space and resources. By contrast, an electronically managed car rental and distribution service could provide just the type of vehicle you want, wherever and whenever you need it. Better management of such vehicle fleets may be more useful than trying to build ever more efficient standard-issue automobiles and imposing increasingly stringent parking restrictions.

4. *Intelligent operation.* Much the same goes for those consumable resources that flow through pipes and wires—water, fuel, and electric power. By putting more intelligence into devices and systems that consume these resources, we can minimize waste and introduce pricing strategies that effectively manage demand and encourage thrift.

A standard, "dumb" irrigation system, for example, relies on human gardeners to turn on the faucet and point the hose in the right direction. A rudimentary automated system may be driven by a clock, so that it sprays water at regular intervals—even when rain is falling. A smarter system may be controlled by sensors, so that it dispenses water only when necessary. But a really smart system should monitor both its environment and water availability levels and learn to predict and automatically satisfy irrigation needs without wasting water or making heavy demands when the supply is restricted.

Similarly, an elementary electrical system allows the lights and appliances in a house to be switched on and off. Slightly more sophisticated systems put some of the switches on timers. With the addition of simple sensors you can create a system that conserves energy by switching off the lights in unoccupied rooms. For maximum efficiency, though, you need a system that learns how you live, learns patterns of varying electricity pricing, and operates your heating and air conditioning, lighting, and appliances according to a predictive, lifestyle-based model that it maintains and continually updates.





"Cathedrals of commerce" (above, the World Trade Center and the World Financial Center in New York) may become less necessary in the wake of on-line banking and investment sites like E-Trade.

This sort of advanced automation is not about labor-saving—the sales slogan for early domestic appliances—nor is it motivated by fantasies of being served hand-and-foot by compliant machines. The goal is to create highly efficient, responsive markets for those scarce, consumable resources upon which all human settlements depend. In these markets, both the sellers and the buyers are intelligent machines. Users of buildings have better things to do than trade energy resources in these markets, so they will leave it to their smart silicon surrogates—which will do better at it anyway.

5. *Soft transformation.* In the 21st century's hot spots of new development, there will undoubtedly be opportunities to create new neighborhoods, and even whole new cities, that are organized to take advantage of emerging methods for dematerialization, demobilization, destandardization, and intelligent control. In most developed areas, though, the primary task will be to adapt existing building stock, public spaces, and transportation infrastructure to meet new requirements.

Fortunately, cyber-sustainable changes need not wreak havoc on cities to the same degree the industrial revolution did. New transportation infrastructure consumes large amounts of space, frequently devastates areas of natural and historic value, and increases noise and pollution; new telecommunications infrastructure is far gentler and less intrusive in its physical effects. It will not need a Robert Moses, because it can often be inserted almost invisibly.

Furthermore, electronically serviced space for information work does not have to be concentrated in large contiguous chunks, like the commercial and industrial zones of today's cities. It can be accommodated within the small-scale spaces that characterize older cities, which opens up promising opportunities for preservation, reuse, and revitalization.

In the 21st century, then, architects and urban designers must gracefully integrate the emerging activity patterns created by pervasive digital telecommunication into the urban forms and textures inherited from the past. The path from our present systems to those of the future need not be one of cataclysmic change; it can be one of mostly soft, subtle, incremental transformation. ■



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CIRCLE 19 ON INQUIRY C

DIGITAL ARCHITECT Computer intranets move firms closer to the seemingly elusive goal of a well-connected practice.

BY JERRY LAISERIN, AIA

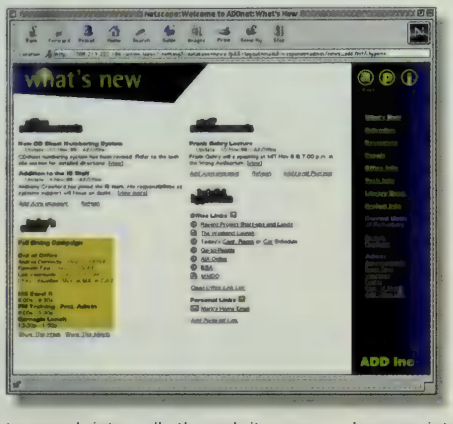
When architects began automating their offices in the 1980s, they substituted word processers for typewriters, time and billing software for adding machines, and computer-aided design (CAD) for drafting pens. While the instruments of production changed, the actual output remained much the same: discrete correspondence, financial reports, and drawings. But computers also translated the words, numbers, and graphics of those traditional documents into digital information that could be moved and managed in radically new ways.

Today, database management systems, like electronic glue, bind together disparate data types for presentation and study in a variety of useful permutations. Universal interfaces, such as Web browsers, allow architects easier, more centralized electronic access to office and project files. By combining database-linked software applications and Web browser–based file access with a new kind of software "lens," called middleware, cutting-edge design firms are focusing on internal Webs, or intranets, to link their practices.

What's an intranet?

The word "intranet," coined in 1993 by the Amdahl Corporation in Sunnyvale, California, refers to a firm's use of Web browser software

Jerry Laiserin, AIA, consults, lectures, and writes about the impact of information technology on the practice of architecture. He is an editor of ACADIA, *the journal of the Association for Computer-Aided Design in Architecture.*



An intranet homepage, similar to one found on the Internet, from ADD Inc.

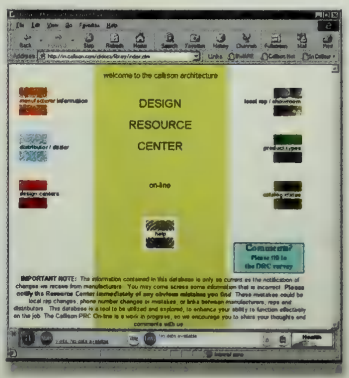
to search internally through its own files. Browsers, like Microsoft's Internet Explorer or Netscape Navigator, originally were developed to explore external World Wide Web files on the public Internet and to navigate the links among them. But nearly 87 percent of businesses responding to a recent *InternetWeek* survey have already adapted their browsers to intranet usage. This figure is expected to rise to 98 percent this year.

An intranet consists of more than just a Web browser "front end." Typically, there is also a database management system (DBMS) "back end" and Web server middleware that arranges data for presentation to the browser. This tripartite division is often called a three-tier "architecture," which describes the logical organization of computer software components into an overall system.

Intranet users rely on the Web browser as the software equivalent of a viewfinder, framing virtual snapshots of internal files. The browser, in turn, looks through a software lens provided by middleware. The latter focuses and filters views of one or more databases to provide shared connections among a firm's disparate programs and file types.

Among the design firms that already have an intranet, the range of online content is remarkably uniform. Opening screens often resemble home pages of public Internet sites, but with internal links to firm information, such as employee directories; calendars; schedules; personnel policies and office manuals; project, resource, and image detail libraries; CAD standards; help files; and databases of current and prospective clients.

Notably missing from most intranets, however, are project Web sites, or extranets. These sites contain project-specific information accessible to the appropriate client, consultants, and contractors. Ken Sanders, AIA, partner at Zimmer Gunsul Frasca Partnership (ZGF), observes that general office intranets and project Web sites each "need different layers of openness and accessibility," depending on how they are used.



Callison's resource library includes manufacturer information, distributors/dealers, design centers, local representatives, and product types.

Building an intranet

For most firms, the choice of intranet software tools is governed by compatibility with the software they already have installed on their local area network. If a firm already uses a Web browser for Internet access, it is likely to apply the same browser as the front end of its intranet.

The advantage, according to Sanders, "is that the browser becomes the universal viewing device for external and internal information." Smaller firms, and those using Macintosh computers, seem to prefer Netscape's browser software. Larger firms, like the 350-person ZGF, lean toward Microsoft's Internet Explorer as their intranet front end, especially if they use Microsoft WindowsNT as their operating software.

Similarly, a centralized DBMS is usually the logical choice for the intranet back end. ZGF had Microsoft's SQL Server DBMS in place even before launching an intranet. Firms that do not have a centralized DBMS, or are looking to upgrade one they already have, generally choose systems that comply with the software standard known as

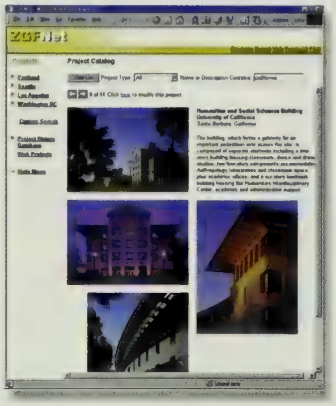
open database connectivity (ODBC). This standard assures that DBMS tools can read each other's files. A majority of currently popular databases, from the richest offerings of Oracle Corporation to the newest version of FileMaker software's plain-vanilla FileMaker Pro, are ODBC-compliant.

A single intranet can, and often does, work with multiple databases. Some of a firm's existing software may store data in DBMS formats. At Hardy Holzman Pfeiffer Associates (HHPA) in New York City, the main DBMS for existing applications is SQL Server, but James Brogan, AIA, the firm's director of technology, prefers to develop new intranet-specific applications in FileMaker Pro. "It's easy, fast, and very Web-compatible, so it's perfect for our contact lists, project directories, and interiors resources," he says.

Other firms, like Cambridge, Massachusetts–based ADD Inc., choose FileMaker Pro "because it works equally well on our Windows and Macintosh platforms," says Jill Rothenberg, the information services director at the 140-person firm.

The most critical component of an intranet is middleware, a term properly limited to Web servers, like Microsoft's Internet Information Server (IIS). Frequently, that category is stretched to include software development tools, like Microsoft's Visual InterDev, for creating custom intranet applications; and also page-layout tools, like Microsoft's FrontPage, that craft Web documents the same way desktop publishing crafts printed documents.

Many firms choose IIS as a Web server, in part because it is included with their WindowsNT software. Alternatively, firms that use both Macintosh and Windows computers choose "cross-platform" middleware tools like Lasso 3 from Blue World Communications. The ability to easily blend multiple databases, like SQL Server and FileMaker Pro, appealed to Bob Roberts, director of computer services at the 60-person MBT Architecture, with



This project catalog is used by ZGF to house images and descriptions of the firm's past projects. The catalog can be searched by company employees according to project type, name, or description.

offices in San Francisco and Seattle, to select Pervasive Software's Tango 3.5 as the firm's middleware.

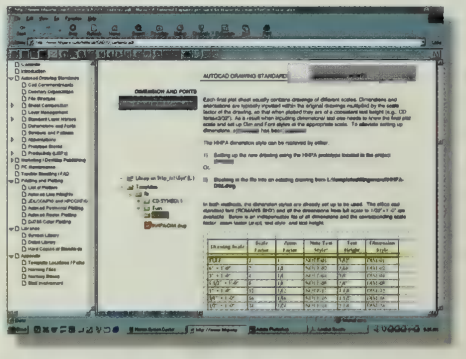
Development and page-layout tools in middleware packages offer a range of mix-and-match choices with each other and with various Web servers. ZGF's Sanders uses IIS as a Web server, with Visual InterDev 6.0 for application development. At the 450-person firm Callison Architecture, based in Seattle, Michael Medina, director of technology services, and Brian Ware, applications manager, use Allaire's ColdFusion 4.0 development tool because of its ease of use and its cost-effectiveness. Brogan at HHPA relies on an IIS Web server plus Microsoft's FrontPage page-layout tool for developing his firm's intranet pages.

If intranet information must be frequently updated or involves specialized file types, like CAD or image files, some architects turn to automated Web servers and specialized middleware. For example, Callison Architecture's extensive intranet requires regular updates to thousands of time-sensitive documents, such as project schedules or product catalogs. It would be time-consuming for users to post these updates one by one. Instead, Callison automates intranet publishing and updating of all non-CAD files via Allegis Corporation's Net-It Central Web server, and serves up CAD files to the intranet via Bentley Systems' ModelServer Publisher.

Linking to an intranet

As architects add more complex software to their practices, "people need to know a dozen different applications to do any useful work," Sanders says. One solution to this problem is for software vendors to make the input and output functions of their products directly accessible via browser software. This Web- or browser-enabled feature spares users from learning multiple distinct program interfaces. Instead, the browser becomes the common control panel for many programs, as well as the common viewfinder for multiple file types.

For example, SOTA Software



HHPA's CAD standards are available on the firm's intranet to ensure consistency in the style of drawings. Labeling, fonts, layer management, dimensions, and symbols are all universalized.

Systems' AegisWeb is the first fully intranet-compatible accounting software for architects and engineers. At giant firms such as HLM, Spillis Candela & Partners, and Callison, project managers access AegisWeb via a browser and generate project reports without intervention by accounting or information systems staff. This puts timely project control information directly into the hands of those who need to act on it. Advantage, from Deltek Systems' Harper and Shuman division, includes browser-enabled Timekeeper and Expensekeeper modules to accelerate timesheet entry at major firms like Gensler, Hellmuth, Obata + Kassabaum, and ZGF.

Some project management software programs are also adding intranet functionality. Webster, from Primavera Systems, is a browser-based viewer for Primavera's Project Planner and for Expedition, a program for tracking submittal logs and other construction-phase paperwork. Meridian Project Systems recently released Prolog WebSite, a Web-enabled add-on to Prolog Manager 5.0, another scheduling, logging, and tracking tool.

Challenges and benefits

The consensus among users and software vendors is that all programs will be intranet-ready within a year or two. However, Brogan notes, "The real challenge of intranet technology is not the software itself, but getting the culture of the office to tap into it." In-house education is needed to overcome what Brogan describes as "an age gap in people's comfort level with the technology, which occurs somewhere around those in their early 30s." And the intranet must be made easy for all staff to contribute to, not just the information systems staff.

Intranet users are almost unanimous in citing the advantages of the new technology: centralized files, coordinated procedures, firm-wide access to all information, and ease of distributing and updating information. Ultimately, though, the benefits of an intranet are more about people than about programs. "Intranets provide a resource to leverage good ideas anywhere that they occur in the firm," concludes Sanders. Easier communication means that these ideas can flow more smoothly among company personnel. ■



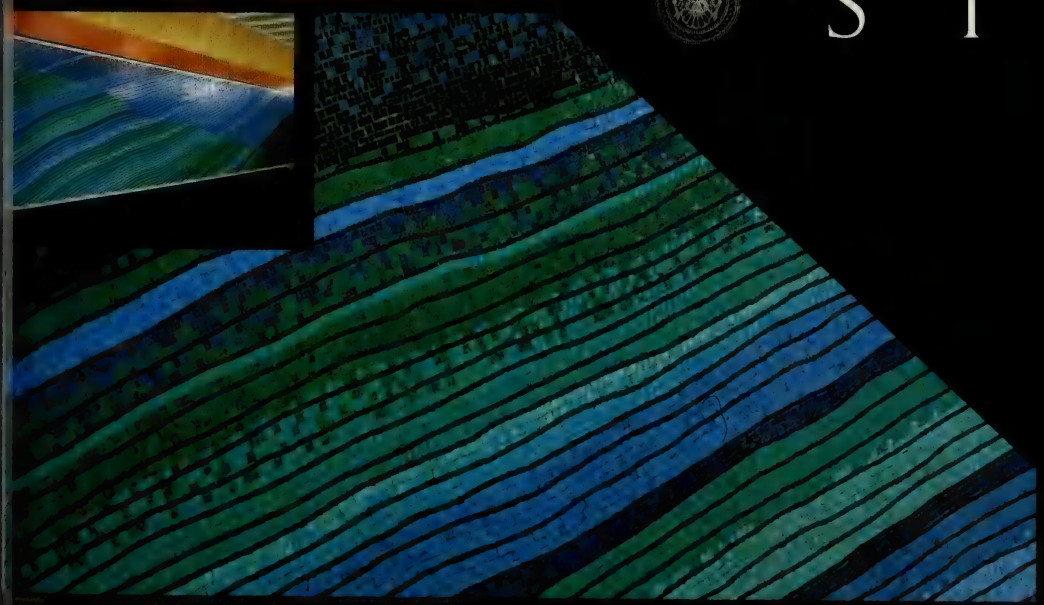


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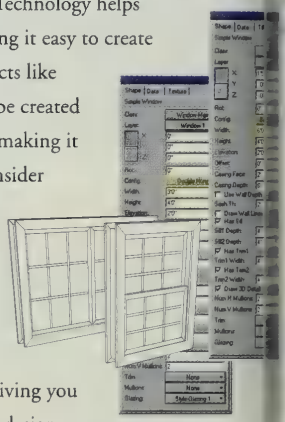
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CIRCLE 21 ON INQUIRY CARD

CORRESPONDENT'S FILE As Havana crumbles, Castro's agencies struggle to preserve a rich legacy while controlling new development.

BY JAMES S. RUSSELL, AIA

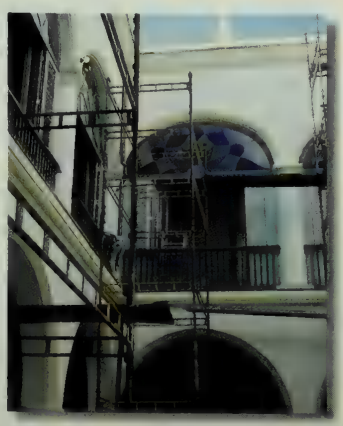
ames S. Russell, AIA, is RECORD's edi-
or at large.

Eusebio Leal Spengler is quickly guiding visitors through the streets of old Havana. A group of Americans, organized by the Preservation League of New York and the Bethesda, Maryland–based International Policy Institute, is examining the work his Office of the City Historian has done to restore the 1828 monument to the city's founding. But Leal (like other Cubans, he goes by his middle name) has already moved across a plaza to the 17th-century Palace of the Nobles, which has been turned into a hotel. Leal moves fast because he has much to show.

He is, for now, one of the primary hopes for this city teetering on the brink. Leal's efforts represent some of the most successful steps taken by the Castro regime in its effort to balance socialist values with a desperate need to generate hard currency. In 1994, the Office of the City Historian was given the power to restore buildings and turn them into primarily tourist-oriented hotels, restaurants, and retail outlets; the proceeds are reinvested in subsequent projects. For example, starting with just $1 million, Leal has completed 4 hotels and has 17 more in construction. His operations now bring in $4 million a month, which is reinvested in a rapidly growing panoply of new projects that increasingly involve foreign investors.

Still, buildings collapse regularly in Havana. Visitors encounter piles of rubble in otherwise neatly swept and largely empty streets. (Resources are too meager to dispose of the remains.) Cuba's status as the most radical Communist state in the western hemisphere has preserved, by poverty as much as intention, a pre-automobile city with an architectural wealth ranging from 16th-century fortresses and 17th-century palaces to 19th-century villas and 20th-century boomerang-modern suburbs. But historic preservation partisans worldwide have Cuba on a death watch: it is poised between the Scylla of spiraling decline under its current bureaucratic structure and the Charybdis of new, cash-generating but insensitive development (RECORD, February 1997, page 90).

The Castro regime has vested extraordinary power in the normally peripheral figure of City Historian. Leal has become akin to a planner, real estate investor, and mayor rolled into one. His office employs 100 architects and engineers, 20 archaeologists, and 40 historians. He has created a school that teaches restoration of iron, stone, brick, and wood. He produces a magazine and television shows. In one hotel, he will install a boutique cigar factory, and for a restored apothecary, he has organized the manufacture of homeopathic soaps and medicines.



Some of the historic residences in Old Havana are undergoing restoration and renovation.



A typically impressive—yet run-down—view of Old Havana.

Leal's office installed a library behind a historic palace facade in what was once the American Embassy, restored a prenatal clinic, created a program to help older people attend church, and is turning an Art Deco cinema into a history museum. It's not surprising that he is greeted wherever he goes by store proprietors and neighborhood residents.

However, preservationists have criticized the quality of Leal's restorations. Although he admits that some historic fabric is now lost that might have been saved by a wealthier city, Leal points to the damage decades of neglect have inflicted. He explains that, for Havana's

architecture, either there is little detail left to restore (especially in interiors) or the materials research is too costly. And he stresses that he spent years being thwarted in his attempts to get anything of substance accomplished before he took a path that was more entrepreneurial and more political than academics usually choose.

The fate of Victor Marin Crespo, director of the conservation department of Cuba's National Center of Conservation, Restoration and Museology, is more closely tied to the deteriorating fortunes of the regime. The center he heads researches and manages the conservation of buildings, furniture, decorative arts, and landscapes. Although UNESCO and the United Nations Development Program help by providing modern materials-restoration laboratories, "budgets are going down," says Marin.

He is headquartered in a cloister complex built in the 17th and 18th centuries that made the World Monument Fund's most endangered landmark list in 1996. Marin has restored the earliest two cloisters, but he could afford to do so only by cannibalizing a third. Only about half the exterior walls of the third cloister remain, propped by timbers.

Cooperative relationships with other conservation groups in the Caribbean and with universities in Latin America, Europe, and the United States generate some income for the center. (American research is allowed under the U.S. embargo.) Marin has so far eschewed the entrepreneurial path Leal has followed: "We wouldn't be able to teach and research enough." But he recognizes the deepening crisis of Havana's building stock. "I have to find new funds and increase our capacity to respond," he says.

A ride down Calzado del Cerro, one of the central arteries of Havana's 19th-century growth, offers an inkling not only of the vastness of the city's tragic beauty, but the enormous effort needed to make it viable again. The dozens of blocks on this two-mile-plus trip are lined with arcades—some elegantly austere, others exuberantly ornate. Only a few of the hundreds of storefronts actually sell anything. Once the store-lined backbone for a dozen neighborhoods, the street is today an exhibition of the myriad ways a city can rot away.



In Miramar, recent development blocks ocean views.

Across town, in Miramar, amid the streamlined modern villas and Neutra-style houses of the pre-Castro elite, sits a steel-trussed pavilion housing a 75-foot-long model of Havana. This is the chief tool of Mario Coyula Cowley, the city's planning director, who uses it to shape development as Havana draws more foreign investment.

Coyula doesn't hesitate to point out recent failures—for example, a complex of high-rise hotels and office buildings, only a few blocks from his city model, overwhelm the neighborhood scale and block public access and views to the ocean (left). Worse, such complexes function as suburbanized foreign enclaves, entered primarily by car and disassociated from the surrounding neighborhoods and historic centers of commerce.

Coyula says the regime is only beginning to recognize it is possible to ameliorate the worst aspects of outside development while also boosting Cuba's identity. "We don't have to sell hamburgers to tourists,"



CIRCLE 22 ON INQUIRY CARD

e says. "People love things that are niquely Cuban, like our [style of] andwiches and our milkshakes."

Aspects of the Cuban identity 're also being exported. One of ie most intriguing designs of the astro era—the National Arts chools—was the subject of a sym-osium at Columbia University in ebruary and is the focus of an khibition at the MAK Center in Los ngeles and at Columbia through lay. But the school is an exception. eclining incomes and imploding overnment subsidies are causing fficials to lose control of develop-ient, says Coyula. "It's hard to nforce architectural integrity when little cafeteria attached to a ouse, though illegal, allows family iembers to eat." The fact that star-ation is a real risk suggests the nd of Herculean efforts needed to estore Havana's crumbling legacy. hough professionals like Leal, oyula, and Marin remain loyal to ie regime and its goals, officially egulated incomes are so low that





The 1828 monument to the founding of Havana (above); the National Arts Schools, built under Castro (right).

the tourist economy, the black market, and Miami lure Cuba's best and brightest.

Castro's attitude toward outside investment remains too pugnacious to draw dollars on the scale needed. In January, the U.S. loosened minor aspects of its embargo; however, the changes probably won't hasten Castro's exit, observers note, or arrest the country's economic meltdown. Indeed, the decline may deprive the country of the intellectual infrastructure that can guide investment in socially, culturally, and environmentally sustainable directions. Critics say the embargo forces Castro to seek development that generates fast cash and is often insensitive to its surroundings. The single-minded focus on tourism development falls far short of the effort needed to revitalize more than just a few of Havana's most beautiful districts. This was, after all, once a bustling business and banking capital, not merely a beachgoer's playground.

Also at risk is Cuba's diverse ecology. Most tourists want beaches, which Havana doesn't have—so resort complexes have sprouted on once little-disturbed coastlines. The government has preserved some important areas, but others have been lost. One new project, in a group of keys called Sabana Camaguey, will link conservation and development, says Antonio Perera Puga, director of Cuba's National Center for Protected Areas.

A visitor cannot help but be torn by Havana's current condition. Drawn to the tragic beauty in the city's aged facades, one is also repelled by the sordid living spaces they enclose. Malecón, the spectacular waterfront boulevard that wraps around the city, is traversed these days only by a sparse, eerie array of bicycles, Eastern-bloc Fiats, and the occasional tailfinned 1950s DeSoto or Cadillac. Havana feels suspended in a moment—one that, for better or worse, will not last. ■



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CIRCLE 24 ON INQUIRY CARD

)UND OF DIGGING FILLS EUROPE AS CAPITALS BUILD NEW SUBWAYS



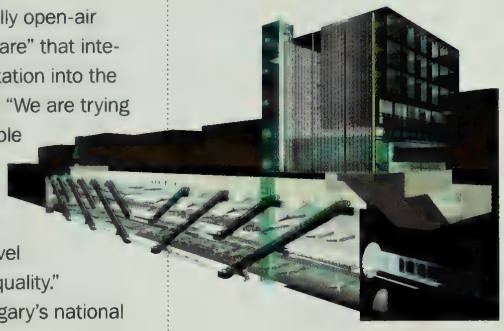
ile the new Jubilee metro line in don is garnering much attention its designs by big-name archi- ts like Sir Norman Foster (look coverage in the July RECORD), jor subway work is also being ie in Paris, Amsterdam, and dapest.

In Paris, the new Météor line— automated, with no human ers needed—was inaugurated President Chirac in late fall. nard Kohn & Associés won a ted competition in 1991 to ign six of the line's 10 stations to act as a consultant for the ster planning of the project; the created designs based on arly defined, self-explanatory functions and central axes (above). Indirect lighting, a sophisticated acoustic design, and high-tech elevators and entrance doors complete the layout. For the above-ground portions (below), Kohn set stairways inside glazed, lighted shafts, creating what he calls "urban signals."



In Amsterdam, construction will begin this year on the city's second metro line. It will extend from Amsterdam North, under the Ij River, through the heart of the city at depths of as much as 107 feet, and on to transit links between Amsterdam's World Trade Center and the airport, and through the growing South Axis commercial complex. The 5.9-mile North-South Line and its eight stations are expected to cost slightly more than $1 billion and accommodate 215,000 riders a day.

For the metro stop at Amsterdam's Central Station (above right), Jan Benthem of the firm Benthem Crouwel has designed a three-layer transit terminal that attempts to restore order to a chaotic intersection of rail, bus, tram, and metro lines. For several of the other stations, Benthem's associate André Staalenhoef has discarded the traditional above-ground entrance to an underground chamber, opting instead for a partially open-air "sunken public square" that integrates the metro station into the surrounding space. "We are trying to redesign the whole public surface," says Staalenhoef, "so that the public spaces at street level really gain a lot in quality."



Although Hungary's national government has withdrawn its financial support for a new 4.5-mile metro line in Budapest, the city is going ahead with the $618 million project. The government walked away in November after its candidate for mayor of Budapest was defeated by the opposition party. But Laszlo Gulyas, managing director of DBR Metro, which was formed by the Budapest municipal transportation authority to manage the project, is unfazed. "Route investigations have been completed, and design work, site preparation, and land acquisition are continuing," he says. Gulyas claims the municipality "has the money to go ahead." He added that a loan contract and government guarantee, signed with the European Investment Bank, are still in effect, despite the national government's withdrawal.

The two-track line, laid in separate tunnels, will link the Keleti Railway Station in downtown Pest with the Kelenfold Railway Station across the Danube River in south Buda, the fastest-growing section of the city. There will be 10 stations, equipped with lifts for disabled commuters. It's been estimated that the new metro, Budapest's fourth, will carry some 400,000 commuters daily and significantly reduce downtown traffic congestion. *Soren Larson, Jim Wake, and Carl Kovac*

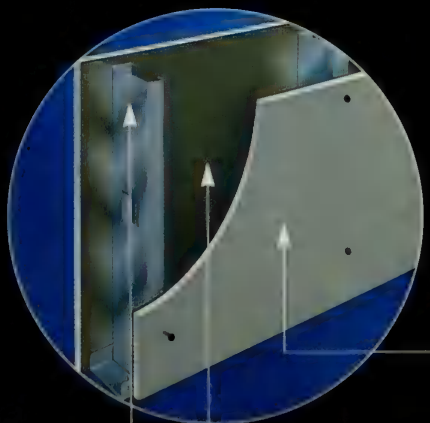
ARCHITECTURE'S STARRY NIGHT **Whoever said that architecture has lost its stars? They were out in full in Washington, D.C., on February 9, gathered from California and Chicago, even from Europe—a constellation of prominent architects, clients, and afficionados—for the American Architectural Foundation's gala, Accent on Architecture. In the space of a few feet, Michael Graves brushed past the Spanish Ambassador, Antonio de Oyarbazal, while Paul Goldberger chatted with Peter Eisenman and critic Cynthia Davidson. Hans Hollein, Charles Gwathmey, Thom Mayne, Eric Moss, and myriad others mingled together in the Great Hall of the National Building Museum.**

National Public Radio's Susan Stamberg presided over an awards ceremony that singled out Chicago—three times. The Windy City figured in three categories: the Keystone Award of the American Architectural Foundation, whose inaugural recipient was Mayor Richard M. Daley; the 25 Year Award of the AIA, garnered by the broad-shouldered John Hancock Center; and the Architecture Firm Award, captured by the prodigious, consistently excellent Perkins and Will (for more AIA honors, see page 58).

A hush fell over the immense interior hall when Frank Gehry took center stage. He stood quietly as AIA President Michael Stanton eulogized his accomplishments. Gehry then reported his awe at being part of an event that linked him with Jefferson, Wright, and Kahn, and said that now he would have to "go back and earn it." While he recognized a full roster of collaborators and partners, the evening reached a poignant climax as he singled out "Uncle Philip" Johnson for his special contributions in fostering new generations of talent. It was a modest and affecting response to glory, a coda to an evening that bubbled like champagne. ***Robert Ivy***

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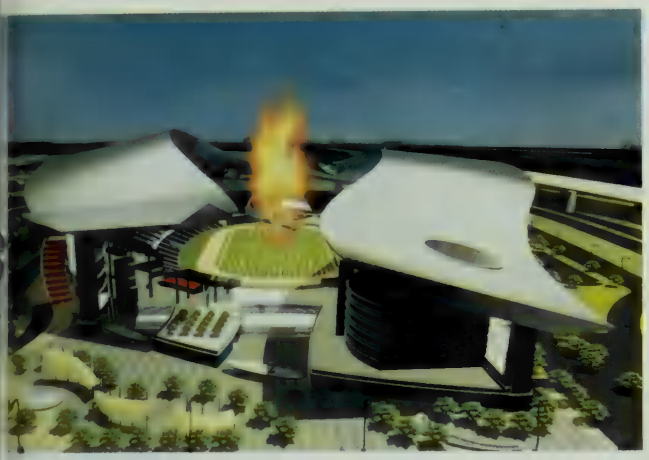
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MERICAN STADIUM DESIGNERS TRYING THEIR HAND IN CHINA

er a competition among eight ited firms (five of them foreign), : People's Republic of China has ected the NEB Design Group to nstruct the 80,000-seat Guang- ng Olympic Stadium in the city of angzhou, about 100 miles north Hong Kong. The project is the nterpiece of a 10 million-square- t Olympic center that will compass retail, restaurant, hotel, d additional athletic facilities. oundbreaking for the $119 million idium was in December, with an celerated construction phase ted to complete the venue in e for the country's Ninth National mes in fall 2001. The complex will rve as a community center and is eant to spark further economic velopment in the area.

NEB is a design consortium mposed of Kansas City-based erbe Becket (design architect), lahoma City-based Nixon & Nixon oject architect), and the local chitectural Design and Research stitute of South China University of chnology (architect of record). xon & Nixon also has offices in ng Kong and Guangzhou.

The stadium was designed to late to the physical environment d history of the 2,000-year-old y, says Michael Sabatini, senior oject designer at Ellerbe Becket. angzhou (formerly known as nton) is called the Flower City, d its climate is balmy year-round. The stadium bowl's curtain-wall facade of colored glass will rise from the ground toward a sculpted upper edge, like the petals of a flower.

The building will feature an array of ribbon imagery—meant to evoke Olympic pageantry as well as the Pearl River, which winds through the city—including a long-span steel-and-glass roof undulating over the seats. An apparatus to create an Olympic-style flame, suspended by cables and accompanied by sculptural ribbons of metal, will hang between the parted sections of the stadium's roof.

A circular, seven-story hotel will rise at the north end of the site; at night, light projected from an opening in the hotel's roof will create a signature beacon, which will be visible from miles away. *William Weathersby, Jr.*

NEW PRODUCTION COMPLEX TO BE DOWNTOWN L.A.'S FIRST FULL STUDIO

Frank Gehry's Disney Hall and Rafael Moneo's Cathedral of St. Vibiana are not the only projects fueling a downtown renaissance in Los Angeles. Hollywood is moving in.

Bastien and Associates of Irvine, California, has designed Los Angeles Center Studios, a production complex to be located on the site of Unocal Company's old headquarters. The $105 million development, the first of its type downtown, is scheduled for completion in July.

The project includes six new 18,000-square-feet soundstages and ancillary support facilities, as well as the renovation of several existing buildings. Given the growing demand for elaborate sets, spectacular special effects, and complicated stunt work, contemporary soundstage design has become a specialized operation. The new soundstages at Los Angeles Center Studios will vary from 35 to 45 feet in height, measured to the bottom of hefty bowstring trusses strong enough to hang a bus, and will contain highly sophisticated audiovisual and mechanical equipment.

In addition, following a precedent set by Bastien with its 1994 soundstage design for CBS Studios, the stages will be constructed of tilt-up concrete. This method differs from traditional double-stud wall soundstage design in that the construction cost is cut almost in half, and the required level of sound absorption is easily reached without complicated insulation materials and techniques.

While the studios' simple, functional forms might not be as visually stimulating as other upcoming buildings nearby, the energy emanating from these silent boxes will remind locals of what makes the city unique. *Alice Y. Kimm*



THE CORCORAN'S CHOICES **Frank Gehry, Daniel Libeskind, and Santiago Calatrava are the finalists in a competition to design an addition to the Corcoran Gallery of Art in Washington, D.C. The three were chosen from an initial field of invited architects that also included Cesar Pelli, Tadao Ando, Sir Norman Foster, SITE, Peter Rose, and James Stewart Polshek. Architecture critic Paul Goldberger has been acting as an adviser to the museum trustees.**

Though other institutions like it exist, the Corcoran, which overlooks the White House grounds, is unusual in that it is both a museum and an accredited school of art. Trustees have long sought to renovate the Beaux Arts building, designed in 1897 by Ernest Flagg, as well as enlarge the facility by expanding onto an adjacent lot acquired years ago. Various pro bono studies have been done in the last 10 years; in an additional, recent effort, the Corcoran paid local firm MSKM Architects to produce both an evaluation of existing conditions and a program document, from which Gehry, Libeskind, and Calatrava will work.

Recommendations include recovering galleries that had been converted into administrative offices, as well as transforming huge copper-and-glass lightwells into studio space. The proposed addition will increase gallery space and consolidate studio space from another location in nearby Georgetown. Whichever finalist wins the commission, the results should be an exciting departure for a conservative capital. ***Ellen Sands***

AS MORE TOWERS SPROUT IN NEW YORK, MAJOR ARCHITECTS ENTER THE FIELD

"We are leaving the period of banal, formulaic residential building design in Manhattan," says Robert A.M. Stern. One of several prominent architects currently designing new apartment high-rises, Stern predicts more variety and greater individuality for New York's future skyline.

These recent projects signal a positive change in public attitude toward contemporary residential architecture, long a developer-driven domain where design was seen as an expensive frivolity. Developers are beginning to cash in on the market value of celebrity architects and promote an interest in design.

Intended to attract the city's fresh influx of affluent settlers, these luxury towers are concentrated largely on the Upper East Side. In Yorkville, a heterogeneous neighborhood of Italianate brownstones adjacent to boxy white-brick behemoths, Hartman-Cox Architects, a Washington, D.C.–based firm, has designed Wellington Towers and the nearby Empire (Schuman Lichtenstein Claman Efron Architects is architect of record for both buildings).

The Empire, due for completion in 2000, is a 31-story neoclassical tripartite tower capped by a metal gabled roof. Curved balconies line the brick and faux-limestone facades. Wellington Towers, also under construction, is a historicist structure featuring a series of masonry bays on the facade, trimmed with Art Deco–inspired precast concrete.

A first for Graves

Right around the corner, Michael Graves has designed his first high-rise in Manhattan. In collaboration with H. Thomas O'Hara Architects (the associate architect), the Impala (far right) is a 24-story tower above a seven-story base. The facade is a play on an aspect of the domestic house, capitalizing on the window as a symbol of home. Double-height precast frames exaggerate the windows, differentiating this skyscraper from an office tower. A half-mile north, O'Hara is the designer for Century Tower, where Graves is designing the interior public spaces.

Graves sees developers' recent interest in design as a positive step for residential projects in Manhattan: "Hopefully, the bar will now be raised a bit and the domino effect will occur—much like the improvement of office buildings 30 years ago after developers became interested in better architecture."

Luxury is the priority at Zeckendorf Realty's 515 Park Avenue, due for completion in December. The design, by Frank Williams, includes huge duplexes on the top floors, individual wine cellars, and a private gym and caterer. The 43-floor tower, intended to evoke 1920s design, is clad in limestone and beige brick, with deep-set rectangular windows.

Robert A.M. Stern Architects is designing three residential buildings in Manhattan, two of which—the Chatham (right) and the Seville—are on the Upper East Side. Both refer to earlier New York luxury apartment dwellings. The brick-and-limestone facade of the Chatham (under construction, with completion slated for 2001), is detailed at the base with townhouse-scale French balconies and bay windows, and it culminates in a campanile. The Seville is a 31-story tower inspired by buildings of the 1920s and 1930s.

Trevor Davis, a partner in RFR/Davis, developer of several of the projects, sums up what architects have known all along: "It is as easy to build high-rises that are good architecture as it is to build high-rises that are bad architecture." *Susanna Sirefman*





MALL MELEE **The city of Coral Gables was founded in the 1920s with a Mediterranean theme and a near-utopian vision. Since then, the ideas of its founder—poet-turned-developer George Merrick—has been the city's guiding spirit. But a mall named after Merrick and approved by the city commission last year has polarized the community, pitting architect against architect and citizen against citizen. It has provoked lawsuits, gag orders, and even a land-use referendum, which mall proponents won.**

The mall is planned by the Rouse Company to be a $275 million extravaganza, with a Neiman Marcus at one end, a Nordstrom at the other, and a design by Spillis Candela & Partners that includes a small freshwater lake. From the start, however, the Village of Merrick Park has had opponents. Merchants from Coral Gables' existing main street, Miracle Mile, feared the new mall would put them out of business. Local residents feared traffic and commotion. Architects and preservationists argued that the mall was not in keeping with Coral Gables' original plan or design intent. Prominent among the critics was historian Vincent Scully, who lives part time in Coral Gables (he holds a chair at the University of Miami School of Architecture). Scully has been active in protests, but he also put his opinions in print as a lengthy footnote in the book *Coral Gables: An American Garden City*. Scully wrote that the new mall would "flood the area with traffic" and "destabilize, degrade, and probably destroy Miracle Mile [and] drastically alter the character of the city." The mayor, Raul Valdes-Fauli, called this "unabashed classical sour grapes," and the city then refused to buy the 1,250 copies of the book it had agreed to purchase.

Though Coral Gables and Rouse are forging ahead after winning the referendum, the protests are not exhausted. Still to come is a regional review of the project's developmental impact, looking at environmental and urban planning issues and questions of congestion. ***Beth Dunlop***

FROM IMAGINATION TO INVENTION

Presenting Three

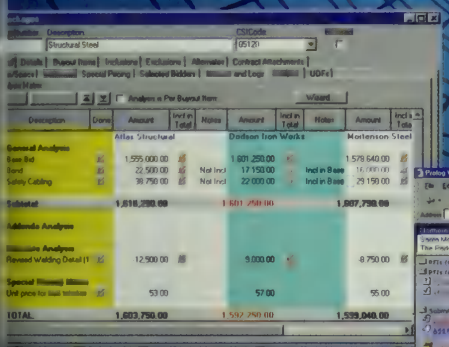
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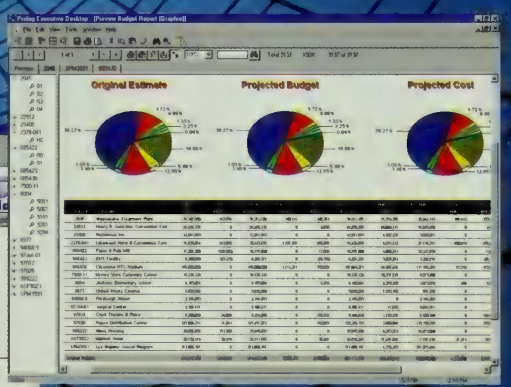
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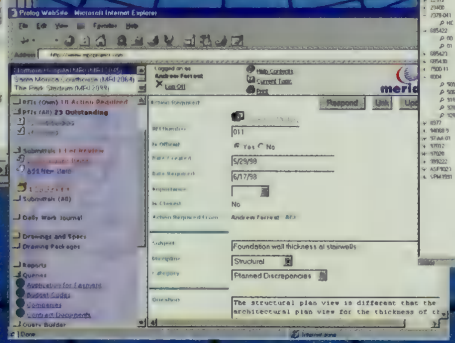
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NEW PROJECTS CONTINUE TO RISE FOR CUMMINS ARCHITECTURE PROGRAM

Strong work continues to be produced under the unique Cummins Foundation building program in Columbus, Indiana. Started more than 50 years ago by the locally headquartered Cummins Engine Company to promote high-quality, innovative architecture, the program pays the commissions of top architects for area projects. Over the years, the many contributing names have included Gunnar Birkerts, Richard Meier, Roche & Dinkeloo, Cesar Pelli, Eliel Saarinen, Robert Venturi, and I. M. Pei.

Among the latest Cummins projects are two basic building types: a library and a fire station. Late last year, William Rawn Associates of Boston completed Fire Station #6 in Columbus (top), the first building to go up during the tenure of Mayor Fred Armstrong.

According to William Rawn, FAIA, the mayor encouraged the firm to engage in a charrette with the fire station personnel before the design process in order to delineate the employees' specific needs. The resulting design is a Modernist building with extensive glazing on each end, infusing it with light. During the day, the appearance of the glass blends with the adjacent stone block to create a coherent volume. At night, the ends become luminescent, highlighting a stretch of Highway 450 South.

Just outside Columbus, in a town called Hope, New York–based Deborah Berke Architect has created the Hope Library, a 6,000-square-foot branch library (above). Berke stayed true to the building's context by using brick walls and steel windows, which appear in many of the neighboring structures. Large windows and high ceilings provide daylight for an asymmetrical reading room.

The result is an unassuming yet modern structure that, according to the architect, has served as an after-school gathering center in the small town since it opened last year. *Soren Larson*

AFTER ASSAILING CURRENT DESIGN, KUNSTLER JUST DOES IT HIMSELF

In his 1993 book, *The Geography of Nowhere,* James Howard Kunstler took aim at sprawl, bad architecture, and the sorry state of the contemporary built environment. In *Home from Nowhere,* published in 1996, he looked to traditional forms and New Urbanism as solutions to the problems he had explored. Late last year, Kunstler put some of his own advice into practice, designing his first building, adjacent to a summer cottage in upstate New York. He discusses its significance in the following interview.

RECORD: What is it that you've built?

Kunstler: A 10-foot-by-12-foot guest bunkhouse adjacent to a one-bedroom cottage on Schroon Lake in the Adirondack region of New York. It is, in effect, a freestanding extra room. I have always wanted to have a lakeside retreat like this, an unelectrified rustic aerie. The property is accessible by boat only, on a side of the lake where there are no roads.

RECORD: What inspired you to make it?

Kunstler: The need for guest accommodations. [My wife and I] wanted our guests to have some privacy, a bit more comfort than camping out, and a thrill. We originally conceived of a tent platform for a spacious wall tent—the kind that you can get, for instance, from the Cabela's Hunting Catalog. In the 19th century, this form of camp housing was common. Once we got the floor platform built, we just said, "What the hell, let's put on walls and a roof, too."

RECORD: How was it built?

Kunstler: Two men worked on the place: a head carpenter, Ed Lowman, of Saratoga Springs, and me. We built it without power tools. No plywood was used. All boards were sawn by hand. The building was framed with two-by-fours and clad with rough-sawn pine in vertical board-and-batten fashion. The window openings were designed to be "gothic," i.e., pointy on top.

The inside is left unfinished to give it the feeling of a summer camp bunk. Besides, the framing makes a good place to put stuff. The project cost $2,000 in labor and about $1,500 in materials. It took about three weeks to construct altogether.

The bunkhouse is both snug and exposed to "nature." The windows virtually wrap around two sides, with a view through the pine boughs to the lake. The rear wall has no windows and affords a secure feeling of shelter. The south wall has one very slender pointy window, conferring a chapel appearance.



RECORD: What does your house "prove?"

Kunstler: I have written a lot about the failures of contemporary architecture, especially its imperious insistence on dogmatic "purity." The house proves that one can solve a problem of domestic logistics—where to stash company—inexpensively and elegantly. It proves also that even the most modest building deserves to be beautiful. *David E. Brown*



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CIRCLE 27 ON INQUIRY CARD



NEW DESIGNS COULD BRING HOPE TO STRUGGLING BRONX NEIGHBORHOODS

The much-maligned Bronx has been on a self-improvement kick of late. In one South Bronx area, community members have banded together to prevent their own displacement and are creating new housing and commercial spaces. Meanwhile, close by, the Bronx South Classic Center—a community center geared to teenagers—is on the rise.

A citizens' group called We Stay/Nos Quedamos was formed in the Melrose neighborhood in 1993 to oppose an urban renewal plan that threatened to raze a 35-square-block section and move out its 6,000 residents. Nos Quedamos hired Larsen Shein Ginsberg Magnusson Architects to create an alternative plan; the first fruit of the collaboration is Plaza de Los Angeles (top), a cluster of three-family homes that broke ground last fall. The design, under the leadership of partner-in-charge Magnus Magnusson, AIA, uses a small scale to retain a neighborhood feel. The facades of the houses are multicolored masonry cladding, with a light cast-stone base and two shades of red brick.

Plaza de Los Angeles is the first project in a plan that involves building more than 2,000 new housing units in the area, along with new commercial, community, and health-care centers. The budget includes more than $500 million in public and private investment.



Nearby, the New York City Housing Authority is building a community center to serve the Jackson, Melrose, and Morrisania Houses. The diagonal orientation of the plan—created by Agrest and Gandelsonas with Wasa Architects and Engineers—refers to the corresponding sites of the various housing projects.

The architects have designed an elliptical gymnasium building, connected to a horizontal bar enclosing offices, classrooms, and other facilities (left). According to the designers, transparent effects—such as the glazing along the length of the bar—were used to avoid a fortresslike effect. Construction of the 20,000-square-foot center should be completed in January 2000. *Soren Larson*

BIG IDEAS FOR SMALL SPACES: THE POWDERHORN PARK PROJECT

In the heart of Minneapolis, a neighborhood of vintage homes from 1900 to 1930 surrounds the 65-acre Powderhorn Park, a hilly landscape circling a shimmering lake. Like other aging urban neighborhoods, the area suffers from too many narrow lots, which are divided into smaller side lots or left vacant because they are considered unbuildable.

In view of the national shortage of affordable housing and the need to increase urban density, the Powderhorn Park Neighborhood Association addressed the situation when it launched the national "Little/Lots" design competition last fall, inviting American architects to submit ideas. The challenge: to design an affordable house with three or four bedrooms on a narrow lot less than 40 feet wide, with a budget of $125,000.

More than 360 entries poured in from all but four states, proving that architects are eager to tackle such problems. As top criteria, the jury—made up of architects and consultants from around the country—stipulated the need for privacy, daylighting, proper context, and above all a good design that could be built on budget.

The $10,000 first prize winner, announced in January, was Scott C. Meland of Meland Hepper Architects in Grand Forks, North Dakota. The jurors pronounced the Meland house, with an eyebrow dormer and gabled roof sheltering four bedrooms and two baths, to be "a great little building with a sense of humor." Second prize and $5,000 went to Bauer Associates of Nashville, Tennessee, whose entry created lively discussion. The design, featuring a long, narrow building along one side of the lot with a walled-in garden along the other edge, was deemed by jurors to be conceptually the best solution—but it was too costly to build. Third prize and $2,500 went to Mark O'Matz of Perkins Eastman in Pittsburgh.

The winner will be awarded a commission to design at least one home in Powderhorn Park; the design will then be released to the community, so that others can follow suit. *Bette Hammel*

PRITZKER, LUCKMAN DIE **Jay Pritzker, head of the family that funds one of architecture's most prestigious prizes, died in January of a heart attack. He was 76. Pritzker, the scion of a billionaire family with businesses ranging from the Hyatt Hotel chain to more than 60 manufacturing and service firms, served as CEO of Hyatt and was viewed as the family dealmaker. The Pritzker family created the annual $100,000 Pritzker Architecture Prize in 1979; the most recent winners were Renzo Piano, Sverre Fehn, Rafael Moneo, and Tadao Ando. Pritzker also contributed extensively to charitable causes in Chicago, including the city's library system, universities, hospitals, and zoo.**

Architect and industrialist Charles Luckman also died in January; he was 89. Luckman's firm is perhaps best known for its 1968 design for Madison Square Garden in New York. He also had a role in creating Boston's Prudential Center, Florida's Cape Canaveral Space Center, Houston's Johnson Space Center, Hawaii's Aloha Stadium, and several Los Angeles landmarks.

Born in Kansas City, Luckman trained as an architect but by age 30 was president of Pepsodent Co.; seven years later he became president of Lever Bros., where he influenced the design of Lever House, the company's famed headquarters on Park Avenue. In 1950 he returned to architecture, establishing a firm in Los Angeles, which designed Los Angeles International Airport's original control tower and Luckman's namesake $22 million arts complex at California State University, Los Angeles. ***S.L.***

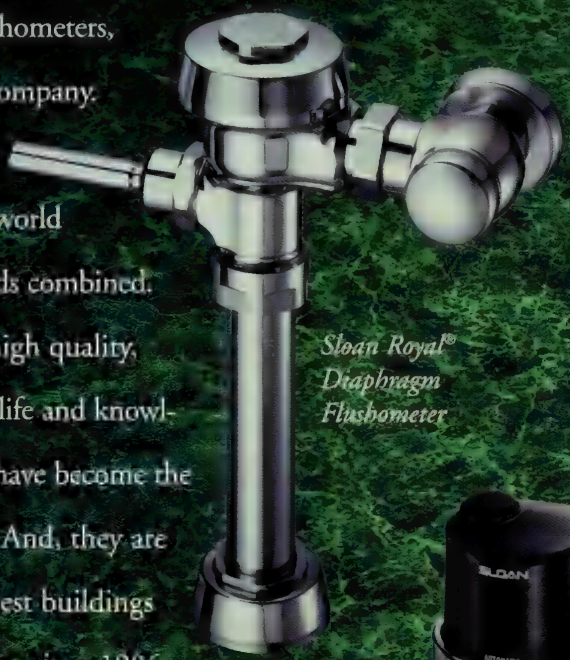
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CIRCLE 28 ON INQUIRY CARD



A TALE OF POST-COMMUNIST BUDAPEST: PALACE WILL BECOME A FOUR SEASONS

The Gresham Palace, a time-worn former palatial residence in downtown Budapest, will soon become the city's leading hotel and one of the most luxurious in Europe, developers say.

An international consortium of investors, including the Toronto-based Four Seasons Hotels and Resorts, a number of pension funds, principally from Canada, and India's Oberoi Associated Hotels Ltd., will sink some $85 million into restoring the venerable structure to its former grandeur by creating a 155-room, five-star hotel. Construction on the Four Seasons Hotel Gresham Palace is slated to get under way this summer and be completed within two years.

A team of architects from the U.S. is already at work on the design. Because the 92-year-old Secessionist-style building is a protected monument, the exterior, main entrance, windows, inner courtyards, ironwork, and public spaces will not be changed. "We will use the same materials as were used in the original construction," says architect Laszlo Vito, project manager, who joined the enterprise from NBBJ. "The Monument Protection Authority requires that we restore the exterior," adds design chief Patrick Fejer, who also came from NBBJ. "Inside, it will be quite different. In the guest rooms, ballrooms, lounge, and lobby, we'll use Secessionist language mediated by contemporary design."

Notes Adam Omansky, who left Machado and Silvetti Associates in Boston to join the design team: "We want a social attraction, with shops and restaurants, as well as a hotel."

The five-story structure, overlooking the Danube near the city's Chain Bridge, was built by insurance magnate Lord William Gresham as a residence for visiting royalty—including members of the Windsor, Hapsburg, and Romanov families—and important clients. The building continued to be a residence for the well-to-do until World War II, when it began to fall into disrepair. At one point, it served as headquarters for Soviet occupation troops; now, capitalism is set to return. *Carl Kovac*

SCIENCE MUSEUM IN MICHIGAN GETS A COLORFUL EXPANSION

The Ann Arbor Hands-On Museum is quadrupling its size and plans a new exterior design that is as playful and fun as the exhibits inside. A splash of rainbow colors provides a backdrop for the three-dimensional rotating gears, oversize chemistry flask, and moving hot air balloon that greet visitors to this interactive science and technology museum.

"The intention was first of all just to make the north facade bright and colorful to attract attention," says David Esau, AIA, vice president of Cornerstone Design in Ann Arbor, architects for the expansion.

With more than 150,000 visitors a year, the Hands-On Museum had gotten too big for its original home. As a result, plans call for a new 31,000-square-foot building to be attached to the 1882 firehouse that has been the museum's home for 17 years. All told, the two buildings will contain 350 exhibits.

Cynthia Yao, the museum's executive director, says a goal of raising $5 million to cover the new building and its 100 exhibits has nearly been reached. Work has begun and the facilities will open in October.

The new building's south entrance will feature a brick facade and peak that match the look of the existing firehouse and other local buildings. The brighter and more fanciful north facade sets a theme that carries over to the two-story-high lobby, floor design, carpet, and accent paints. (Innerspace Design Inc. in Ann Arbor is the interior design firm.)

A small outdoor science park, with giant floor games, an interactive water sculpture, and a maze, leads to the north entrance. Inside, a two-story gallery will house exhibits that are too big for the existing museum. Other highlights include a science theater, a television studio where kids can produce shows, and a telecommunications gallery with exhibits on virtual reality and other technology. The mechanical systems in the galleries are exposed, allowing children to see how buildings work. *Susan R. Bleznick*



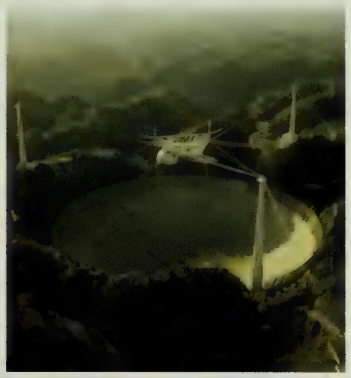
ON THE AIR **It took a year of wrangling and a referendum to convince members that the money deserved to be spent. Now, the AIA's new advertising campaign—paid for by ■ $50 increase in dues voted in at the national convention last May—is hitting the airwaves. The campaign, according to the AIA, is directed at people likely to have ■ need for architectural services: local government officials and businesspeople, institutional boards, and homeowners. The goal is to increase general public understanding of what architects do and how their skills are valuable; to do so, the AIA will spend $3.5 million per year (excluding production costs) through 2001.**

The TV spots begin airing this month on national networks. They will continue through May, and then return for another run in September, October, and November. Meanwhile, a new run of radio advertising will begun airing March ■ on NPR, while print ads will appear in upcoming issues of *Business Week*, *Forbes*, and *Newsweek*. Though the focus may change later, the current campaign centers on schools, workplaces, and residences—from the point of view of clients. One school official praises ■ building where "boredom can't happen." A business client describes an office as "our secret weapon . . . where people escape to work, not from it." To complement the campaign, the AIA has set up a consumer Web site, featuring an architect locator for use by potential clients. ***Soren Larson***

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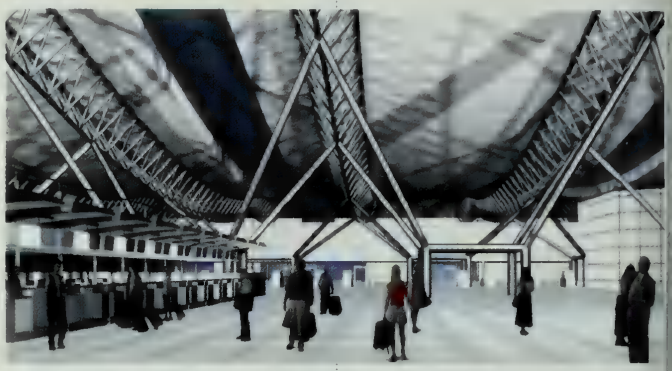
NEWS BRIEFS

This year's list The AIA's 1999 Honor Awards span a broad range of building types, from a rest area, museums, and a health-care center to the Thomas Jefferson Building of the Library of Congress. Nine of the 29 projects involve some form of historic preservation or adaptive reuse. The awards—divided into architecture, interior architecture, and regional and urban design categories—will be presented in May at the AIA's annual convention in Dallas.

New lodgings London architect David Chipperfield is undertaking two projects for trendy hotelier Brian McNally. Work has started on the Miami Shore Club, part renovation and part new construction, with completion expected late this year. Chipperfield is also overseeing the adaptive reuse of New York's landmarked American Radiator Building, designed by Raymond Hood in 1924. It is expected to open as the Bryant Park Hotel early next year.

Rethinking New York The Canadian Centre for Architecture has selected five firms to submit proposals for the first of its series of competitions to encourage unique urban design (RECORD, January, page 54). The firms, which will create ideas for the development of a 16-block area in midtown Manhattan, are Van Berkel & Bos UN Studio of Amsterdam; Eisenman Architects of New York; Morphosis of Santa Monica, California; Cedric Price Architects of London; and Reiser & Umemoto RUR Architecture of New York. The competition offers a $100,000 prize.

Launching pad American Airlines plans to pour $1 billion into a new terminal at New York's John F. Kennedy International Airport. When the 1.9 million-square-foot facility is completed in 2006, it will be the largest and most technically advanced terminal at JFK and will feature a passenger check-in area large enough to hold Giants Stadium. The design—by TAMS Consultants in association with Silvester Tafuro Design—features three concourses, two extending from a central terminal area (above) and a third linked by a 760-foot tunnel with moving walkways.



American Airlines is spending $1 billion on a new terminal.

Outlandish offices London may be the hot town of the moment, but it's no longer the most expensive. According to a survey by CB Richard Ellis, the cost of renting office space in Tokyo's Inner Central district jumped 27 percent in the six months through January, reaching $137.53 a square foot per annum—making it the costliest location in the world. London took second place, followed by Bombay, Hong Kong, and Paris. Mid-Manhattan, the most expensive U.S. office market, came in 13th.

Space race Architects have designed houses for all types of people. Now the client list is



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xpanding. A group of artists and rchitects dubbed the Court of rchitecture has launched an ideas ompetition to design housing for oswell, New Mexico—known for a upposed UFO crash there in 1947. articipants align themselves with ie "advocates" (described as pro- lien) or the "critics" (pro-human), nd then create a housing program ailored to the appropriate species. /hile there is no offer of a building ommission, entrants may travel to oswell in July for the judging.

lodern Maderno To celebrate the ubilee of the Year 2000 in Rome, ie Knights of Columbus are funding restoration of the vast Maderno trium of St. Peter's Basilica. The trium, named for its architect, Carlo laderno (1556–1629), was created y extending the nave of St. Peter's nd erecting an outside facade. The ork being financed by the Knights ncludes cleaning the travertine and arble stonework; restoring the lasterwork and replacing missing



The look of the Wharton's School's new academic center.

sections; and touching up gilded plasterwork.

Upper management The University of Pennsylvania's Wharton School plans to build a 300,000-square-foot, $120 million academic center (above) that it claims will be the world's most advanced facility for management education when it opens in 2002. The building—designed by Kohn Pedersen Fox Associates—will feature 57 group study rooms offering a wide array of technologies and services, such as distance learning, video production, and editing, and will house lounges, an auditorium, and cafeterias.

Nordic connection Denmark and Sweden are teaming up to build the Oresund Fixed Link, a 10-mile bridge and tunnel linking the two countries across the Oresund Sound. The project is meant to act as a catalyst for three cities—Copenhagen in Denmark and Malmo and Lund in Sweden—to join together as a leading economic and cultural center in Europe. It will open in July 2000.

Car talk General Motors has chosen two San Francisco firms—Kaplan McLaughlin Diaz Architects and Planners and Ove Arup & Partners Consulting Engineers—to collaborate on the master plan for its new $880 million facility outside Detroit. Hargreaves Associates will contribute landscape design, Parsons Brinckerhoff will be program manager, and Gensler will create interior designs for the Warren Technical Center, which will include a 1.8 million-square-foot engineering center. In addition, Building Conservation Associates is overseeing the restoration of Eero Saarinen's nearby GM buildings.

Big men on campus The University of Chicago, which has a predominantly English Gothic look, has called on Cesar Pelli and Ricardo Legorreta to design two new structures. Pelli will work on the new Gerald Ratner Athletics Center, which will serve as a recreation center and student gathering place. Plans call for completion in 2002. Legorreta's efforts will go toward construction of new residence halls, slated to open in 2001 near the school's library. ■

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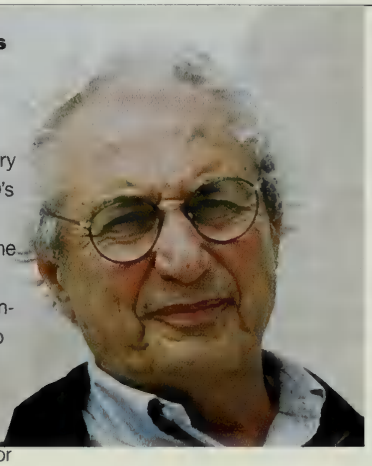
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RECORD's exclusive interviews with Frank Gehry, Sir Norman Foster, and others "I think of myself as an outsider," confided AIA Gold Medal recipient Frank Gehry over lunch with Robert Ivy, RECORD's editor-in-chief. "I kind of like to hide out," he added. "I [feel] most at home with artists . . . I'm intellectually intrigued with their process, their language, their attitudes, their ability to make things with their own hands." Gehry's artistic bent shows in the way he develops his work. "We play in blocks, and very neutral blocks, for a long time until we get the organization on the site and the scale right," he said. "The shapes have to be clearly related to what is going on inside [the building]. That is a misconception about my work—that I just make shapes." RECORD's comprehensive and exclusive interview with Gehry, and an upcoming visit with Sir Norman Foster, are part of our ongoing Web site series on contemporary architects.



Take a virtual tour See what it's like to stand inside the tallest buildings in the world, the Petronas Towers. Roam through New York City's recently restored Grand Central Terminal (below), Antoine Predock's Spencer Theater, Frank Lloyd Wright's Monona Terrace, and more. Listen to the architects as they describe the design details, and take a look at the extensive drawings of each project.



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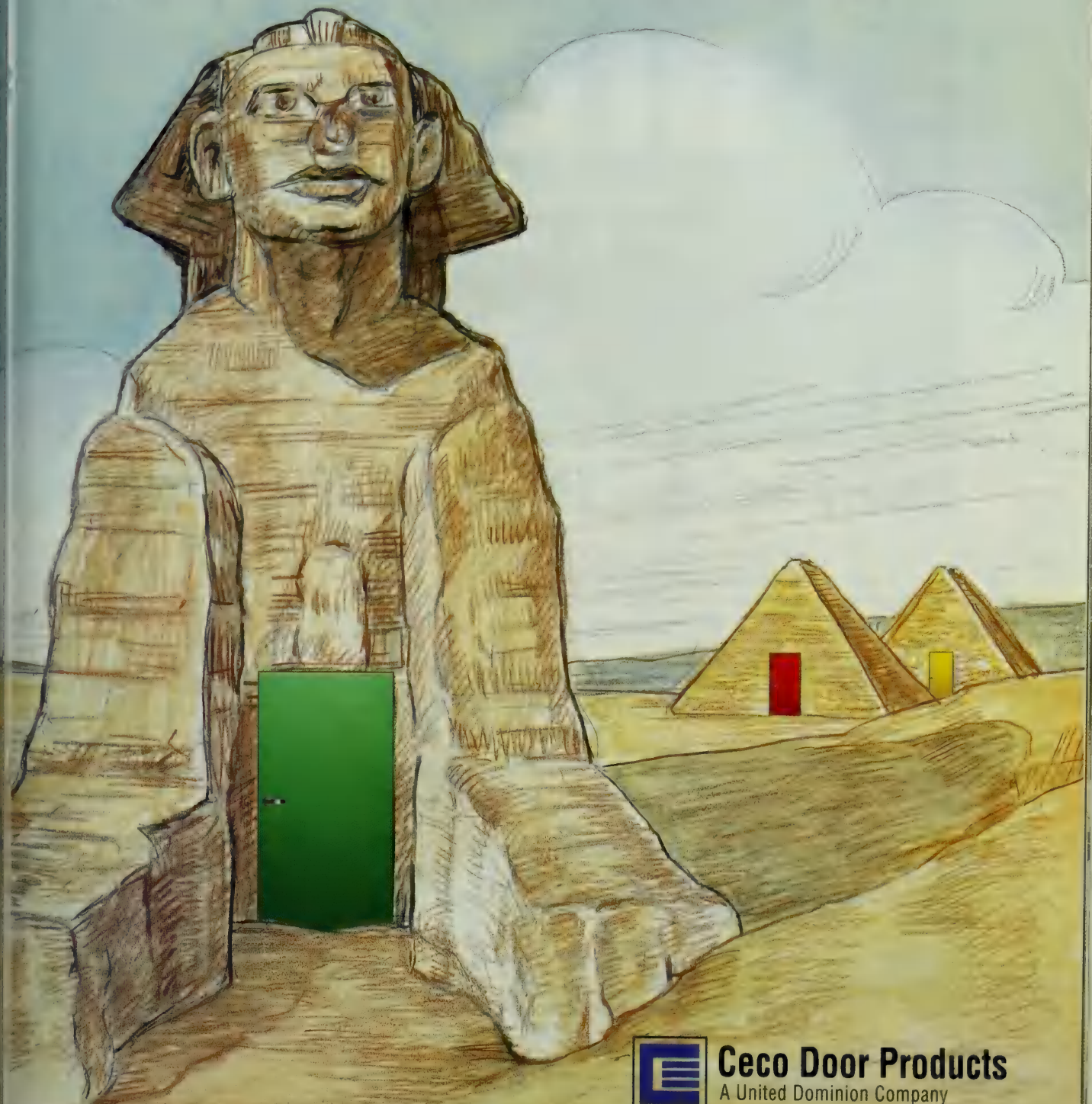
The Cathedral of Cefalu

SOLUTIONS The building pictured in the #2-99 "What in the World?" is the subway entrance at 72nd Street and Broadway in New York City, designed by Heins & LaFarge in 1904. The #1-99 solution is the Romanesque Cathedral of Cefalu, built by Ruggero II at the base of Monte Kafe in Sicily. Visit our Web site for more details on each.

WHAT IN THE WORLD? What is this building? Who designed it? Where is it located? When was it completed? Test your knowledge of exotic structures, significant buildings, and architectural history. Answer these questions and others to win our newest "What in the World?" architectural challenge. One winner each month will receive a free one-year subscription to ARCHITECTURAL RECORD.



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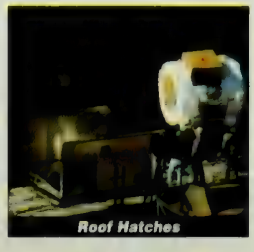
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DATES EVENTS

Calendar

nlimited by Design
ew York City
hrough March 21
n exhibition of products, services, nd environments designed to meet ıe needs of people throughout ıeir life spans, from toddlers to the lderly, demonstrates the effect esign can have on the quality of 'e. Cooper-Hewitt National Design luseum. 212/849-8300.

orgotten Gateway: The Aban-oned Buildings of Ellis Island
/ashington, D.C.
hrough March 28
photographic exhibition docu-ıenting the deterioration of the ıstoric hospital complex on Ellis land, which was untouched by the ıovation that transformed the orth side of the island. National uilding Museum. 202/272-2448.

he Little Apple: Souvenir uildings
ew York City
hrough March 28
n display is a collection of 125 ıiniature New York buildings, with ıe oldest souvenir dating from 800. Museum of the City of New ork. 212/534-1672.

igzags and Speed Stripes: he Art Deco Style
ittsburgh
hrough March 28
n exhibition surveying the impact f the Art Deco style on architecture nd design, tracing the interwar henomenon from zigzag moderne streamlined moderne. Carnegie luseum of Art. 412/622-3131.

uilding the Empire State
ew York City
hrough March 31
documentary look at the design nd construction of Shreve, Lamb & armon's 1931 Empire State uilding. Skyscraper Museum. 12/968-1961.

Architectural Transitions in Prints and Photographs
New York City
Through April 3
Through prints and photographs, this exhibition documents the life cycles of built structures and the constant change of the manmade environment. New York Public Library. 212/869-8089.

Architecture on the Rise: Renderings by Hughson Hawley
New York City
Through April 4
Watercolor drawings from 1880 to 1931 by a master renderer who offered a vision of the developing city. Museum of the City of New York. 212/534-1672.

Unfinished History
Chicago
Through April 4
The work of 23 artists, including architects Lars Spukbroek, Kazuyo Sejima, and Ryue Nishizawa, who are contending with the realities and ambiguities of the late 20th century. Museum of Contemporary Art. 312/280-2660.

Photography and Transformations: Venezia–Marghera
Montreal
Through April 25
The work of 15 Italian photographers who explore the relationship between historic Venice and the modern, industrialized, and polluted mainland port of Marghera nearby. Canadian Centre for Architecture. 514/939-7000.

Marion Mahony and Walter Burley Griffin
Sydney, Australia
Through May 2
This exhibition explores the professional and spiritual journey of architects Mahony and Griffin, from their years in Wright's office around 1900 through their work in Australia and India in the 1920s and '30s. Powerhouse Museum. 011/61/2/217-0111.

Designing in the Wright Style
Lexington, Mass.
Through September 6
This exhibition surveys the collaborative work of Frank Lloyd Wright and George Mann Niedecken, who designed furniture and interiors together during Wright's Prairie Style years. Museum of Our National Heritage. 781/861-6559.

NeoCon South
Miami Beach
March 1–2
NeoCon West
Los Angeles
March 11–12
Two exhibitions showcasing products and services related to interior design and facilities management. Miami Beach Convention Center and Los Angeles Convention Center. For more information, visit www.designfestneoconsouth.com and www.neoconwest.com, or call 800/677-6278.

Concept House 1999
London
March 3–April 10
Entries in the 1999 Concept House competition, including the winning design, Pierre d'Avoine's Slim House–Model Terrace. All of the submissions were designed to provide an environmentally sustainable model for the mass-produced contemporary house. RIBA Architecture Gallery. 44/0171/580/5533.

Encounters: The Vernacular Paradox of Israeli Architecture
New York City
March 19–April 21
An exhibition highlighting Israel's architecture as a product of its society's immigrant roots. Pratt Manhattan Gallery. 718/636-3517.

Archigram: Experimental Architecture, 1961–1974
San Francisco
March 19–June 15
The conceptual work of the celebrated British architectural collaborative, including hundreds of photographs, drawings, models, and installations. San Francisco Museum of Modern Art. 415/357-4000.

Coverings '99
Orlando
March 23–26
The largest trade show in the western hemisphere devoted to ceramic tile and stone products for walls and floors. Orange County Convention Center. Call 800/881-9400, E-mail info@coverings.com, or visit www.coverings.com.

Bauhaus on the Carmel: Modern Architecture in Haifa
Chicago
March 23–May 31
Photographs of residential, commercial, and civic buildings in Haifa, Israel, designed in the Bauhaus style from 1918 to 1948. Chicago Architecture Foundation Atrium Gallery. 312/922-3432.

Hospitality Design '99
Las Vegas
April 8–10
A conference and exhibition of products for professionals in hospitality design. There will be more than 500 exhibitors and 18 educational sessions. Sands Expo and Conference Center. Call 888/200-8498 or visit www.hdexpo.com.

Thinking about Landscape: Interdisciplinary Contributions
Cambridge, Mass.
April 9–10
This symposium will examine a range of landscape architecture, from 17th-century French gardens to contemporary designs, relating it to such fields as literature, geology, environmental history, and sociology. Piper Auditorium, Harvard University Graduate School of Design. 617/496-8728.

American Institute of Architects National Convention
Dallas
May 6–9
The theme of this year's AIA convention, expected to draw as many as 14,000 people, is "Think Big, Make It Happen: Leadership in the

New Millennium." Architects can earn all 36 Learning Units needed for AIA accreditation by attending seminars and exhibitor education sessions. Dallas Convention Center. For information on exhibiting, contact Hill, Holliday Exhibition Services at 617/572-3553.

Competitions

Business Week/Architectural Record Awards

Submission package order deadline: March 15
Submission deadline: April 16

To honor architectural solutions that build the bottom line, the McGraw-Hill Companies' *Business Week* and ARCHITECTURAL RECORD magazines have organized the third annual "Good Design Is Good Business" awards. Submissions must be made jointly by client and architect and may reflect commercial, industrial, or institutional enterprises. For information or to receive a submission package, call 888/242-4240 or 202/682-3205 (outside the U.S.).

Presidential Design Awards 2000

Entry and nomination deadline: April 8

The Presidential Awards for Design Excellence recognize works that have been sponsored, authorized, or commissioned by the U.S. government and have been completed or in use between January 1, 1989 and January 1, 1999. No entry fee; nominations are requested. Nominations are also requested for the Presidential Millennium Design Awards, which honor federal design projects completed in the 20th century that have made a significant contribution to the environment and quality of life in the U.S. Contact Thomas Grooms at the General Services Administration at 202/501-1888 or thomas.grooms@gsa.gov.

Envisioning California's Great Central Valley: Housing the Next 10 Million

Submission deadline: May 1

This ideas competition, to design less-land-intensive housing models and support urban planning implementation tools, will help local decision-makers deal more effectively with the projected growth of California's Central Valley. Open to students and professionals. Contact William Liskamm, AIA California Council, 916/448-9082, or visit www.aiacc.org.

Van Alen Institute Dinkeloo Fellowship

Submission deadline: May 7

A two-month stay at the American Academy in Rome will be awarded for the submission that best demonstrates how architecture and technology can be environmentally conscious. Open only to those who have graduated, or will graduate, from U.S. architecture degree programs between May 1990 and September 1999. For a competition packet, contact the Van Alen Institute at 212/924-7000, E-mail vanalen@vanalen.org, or write 30 West 22nd Street, New York, N.Y. 10010.

1999 James Marston Fitch Charitable Foundation Mid-Career Grant Awards

Application deadline: September 1

A $20,000 research grant will be awarded to a mid-career professional with an advanced or professional degree and at least 10 years experience in one of the following fields: historic preservation, architecture, landscape architecture, urban design, environmental planning, law, engineering, archaeology, architectural history, or the decorative arts. The grants are to support original research and creative design that advances the practice of preservation in the U.S. Call Margaret Evans at the offices of Beyer Blinder Belle, 212/777-7800.

Please submit information for events and competitions at least six weeks prior to the magazine's publication date (April 15 for the June issue).

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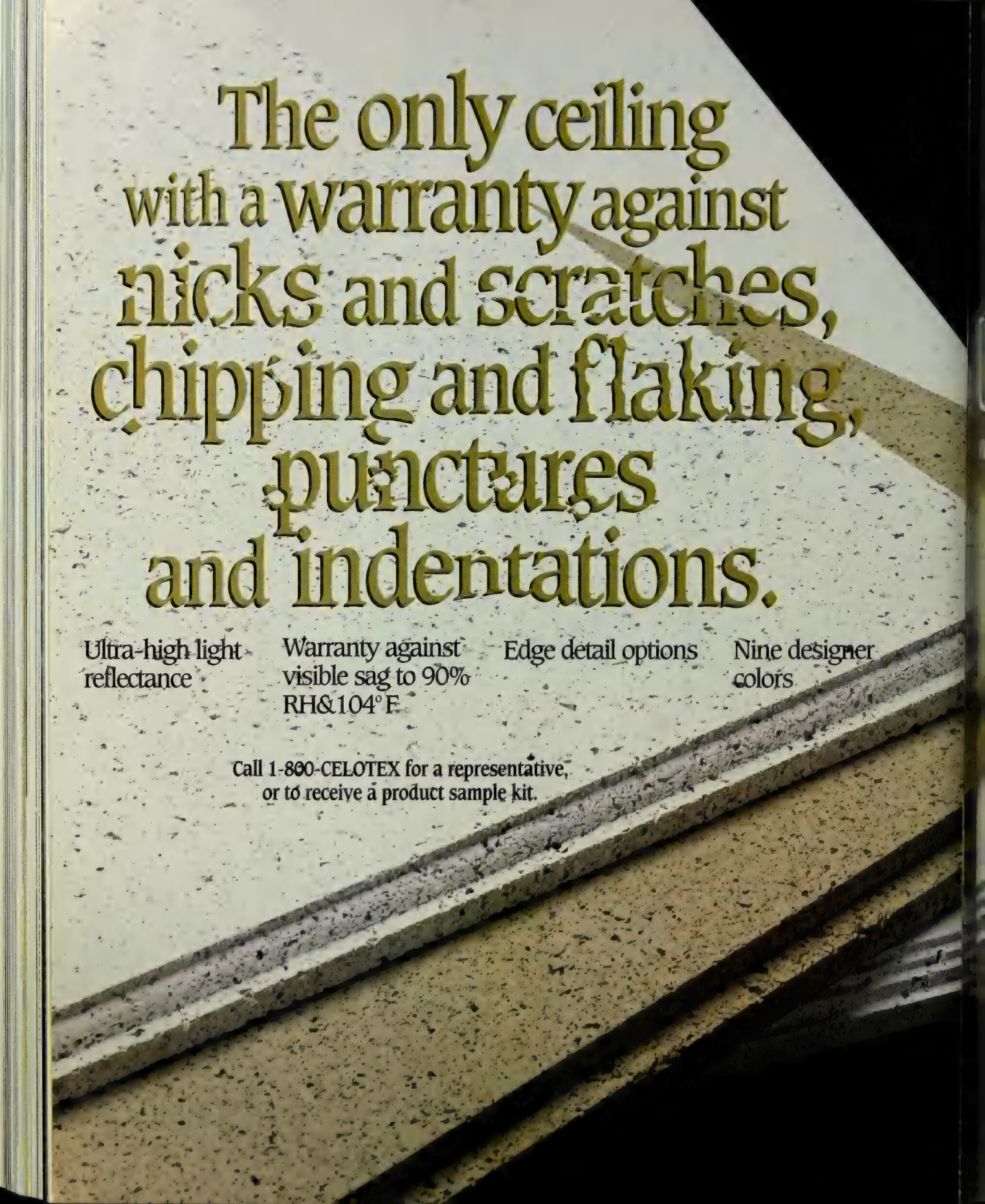
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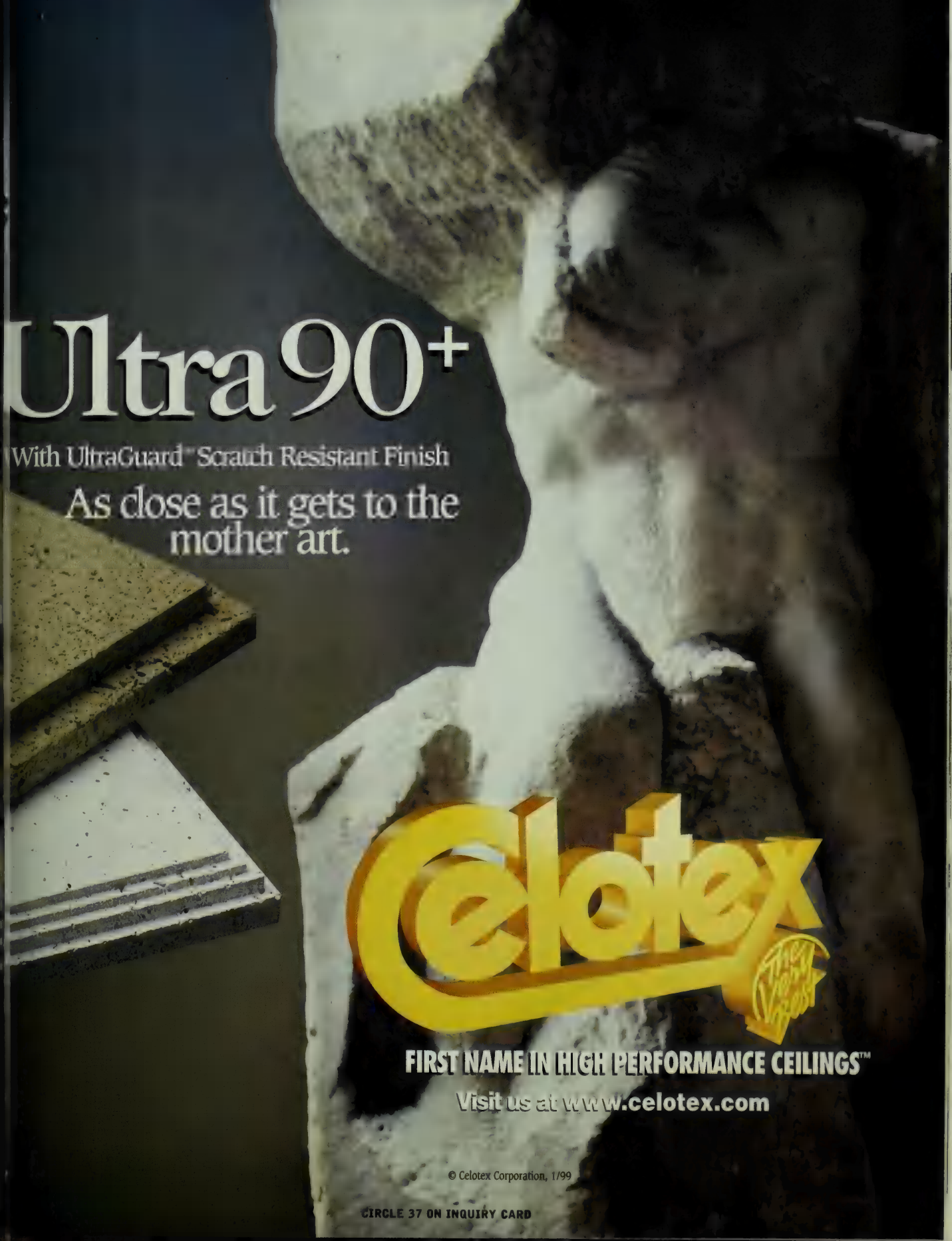
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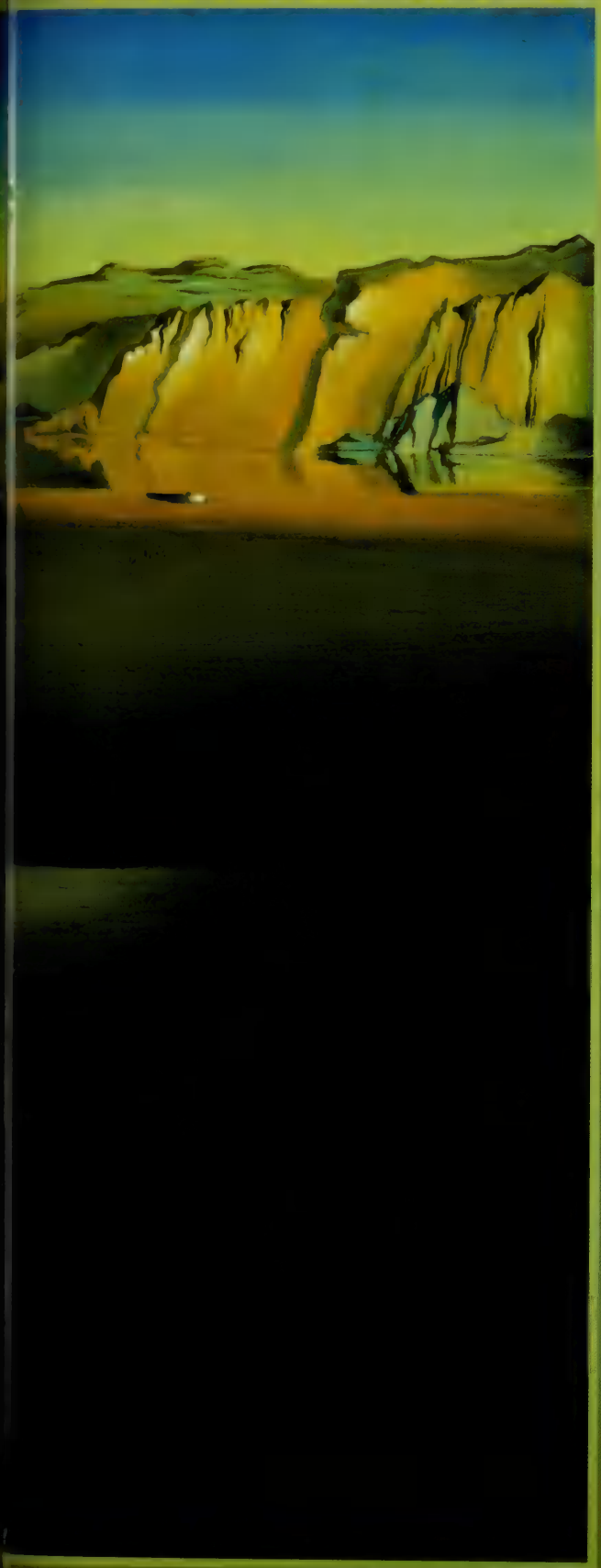
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Salvador Dali, *The Persistence of Memory*, 1931. Oil on canvas, 9½ by 13 inches. The Museum of Modern Art, New York. Given anonymously. Photograph 1998 © The Museum of Modern Art, New York.

TIME FOR THE MILLENNIUM

THE CLOCK IS RUNNING. TAKE TECHNICAL AND LEGAL STEPS NOW TO LESSEN THE IMPACT OF THE YEAR 2000 COMPUTER CRISIS.

by B. J. Novitski

The press has been inundated with reports of the millennium bug, the computer programming glitch that threatens to wreak havoc with electronic systems—from the national power grid to telephone, banking, and air traffic control systems—beginning at midnight on December 31, 1999. But how will this insidious year 2000 (Y2K) bug affect the practice of architecture?

Simply upgrading computer hardware and software is a major hurdle. But architects should also consider and prepare for the legal implications of possible building-systems failures.

The problem derives from the programming practice of allocating two digits instead of four to the year portion of a date. Many systems will interpret 00 as 1900 rather than 2000, resulting in a variety of scheduling and calculation errors. Older computers with internal clocks may simply cease functioning in 2000. In addition, computer programmers who ignored the first two digits of the year were unaware of one of the more obscure aspects of determining leap years: although generally speaking, a year that is divisible by 100 does not have an extra day, the exception to this rule are those years divisible by 400. On February 29, 2000, some control systems will slide off schedule by one day.

Trouble for architects

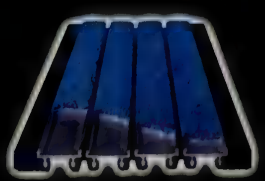
Architects may experience any number of problems with their own internal functions and with external transactions. In-house project management systems may create scheduling errors, and accounting software may incorrectly calculate overdue dates. Even a firm that is completely Y2K-ready could be adversely affected by the problems of their clients, consultants, or suppliers.

Yet, worse for those in the construction industry is the fact that building systems themselves may fail. The practice of formatting years as two digits was hard-coded into the electronic chips embedded in many automated building systems. On January 1, an elevator may "think" that it has not been serviced for 99 years and shut itself off for safety reasons. Elevator manufacturers, for their part, cannot guarantee against failures if their equipment is

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onnected to building controls made by other manufacturers. Some of ıe systems most vulnerable to failure from the Y2K bug or the leap year roblem are lighting, thermostats, chillers, backup generators, medical quipment, prison security systems, fire and burglar alarms, office equipıent, and water and sewage systems.

The Building Owners and Managers Association (BOMA) is orking to educate facilities managers about bringing buildings into Y2K mpliance. Though nearly everyone agrees that it is the responsibility of ilding products manufacturers to ensure that their equipment will perate correctly, architects may be named in lawsuits stemming from uilding-system failures in 2000.

ompliance liability

lost architects have little knowledge of—let alone control over—the ips embedded in the equipment they specify. Yet according to architect ıd attorney Gregory Hancks, AIA, of the Kansas City, Missouri, office of

F ARCHITECTS SPECIFY EQUIPMENT WITH EMBEDDED CHIPS, THEY MAY BE HELD RESPONSIBLE IF THE EQUIPMENT FAILS.

ıe law firm Kutak Rock, an architect's liability is no different than with a ıore common failure, such as a leaking roof. "If architects and engineers ecify equipment with embedded chips, they may be held responsible for ıe owner having purchased the equipment," he says. "So if it fails, the wner can bring a lawsuit for negligence, breach of contract, breach of arranty, and breach of fiduciary duty."

Last October, President Clinton signed the Year 2000 Infor-ıation and Readiness Disclosure Act, which is intended to encourage the change of information about computer processing problems, solutions, st practices and test results, and related matters, in connection with the ansition to the year 2000. With certain exceptions (such as statements ıade in Securities and Exchange Commission filings), the act protects statement made in good faith and labeled "Year 2000 Readiness Disclo-ıre" from being used as evidence in civil court actions. Presumably this t encourages everyone to share information freely and thus improve the kelihood of readiness by December 31. However, the act notably cludes from protection any liability for actual failures, such as in build-ıg systems. In other words, while architects, manufacturers, and uilding owners are encouraged to swap information on Y2K readiness, oing so does not mean any of the parties are safe from litigation if a ystem fails.

According to attorney Gerald Weisbach, FAIA, of the San Fran-sco law firm Long & Levit, architects should automatically include a ote defining their Y2K compatibility requirements in the general condi-ons of their specifications. "Some of our architect clients have included requirement for certification by suppliers of any automated equipment ıat might be sensitive to the problem, such as elevators and security and ontrol equipment," Weisbach says. Furthermore, any supplier who sells a iece of equipment today that is incompatible with Y2K may very well be ound negligent. However, it is ill advised for an architect or engineer to arrant the compliance of a piece of equipment, he adds. Doing so ıanges the standard of care. As a result, architects and engineers will ıost likely not be insured under their professional liability policies for ıat kind of guarantee.

In addition, architects should refrain from signing letters com-osed by clients which state that the architecture firm or the project is 2K-compliant. This is an increasingly common request. Such a guaran-e by an architect would be dangerous as well as untruthful since no one can be completely certain about their own equipment, much less that of others with whom they share data.

Victor O. Schinnerer, an underwriting manager of professional liability insurance programs based in Chevy Chase, Maryland, weighs the pros and cons of responding to client requests for assurance about the firm's compliance in an article, "Approaching the Millennium," on the company's Web site. In the article Schinnerer says, "In the absence of a clear contractual obligation, a design firm may be under no legal duty to respond to a Y2K inquiry from a client, a lender, a consultant, or other party about the design firm's readiness. When faced with an incoming inquiry, a design firm should consider whether a response is legally mandatory and whether a nonresponse has adverse business consequences." If such a response is unavoidable, it should be as narrowly stated as possible. For example, a firm may choose to describe its steps toward preparation but refrain from claiming complete compliance.

What about systems embedded in existing buildings? Can architects limit their liability by warning past clients about potential dangers? Members of the legal community disagree on this question. No clear answer may emerge until the courts weigh in—after the damage is done. But Weisbach urges caution. Such a warning may imply that the architect or engineer knows more than the client or the public-at-large regarding the Y2K bug. "If you notify your client and there isn't time to fix the problems, were you negligent in not notifying them sooner? Did you acknowledge or assume some notion of responsibility that you don't have?" he says. These kinds of sticky questions make it difficult for architects to be forthcoming and responsive to their clients while avoiding legal confrontations.

Attorney Alan Buchalter, AIA, of Eugene, Oregon, says a timely, carefully crafted letter to the owners of buildings with potentially susceptible systems might be in order. He suggests that architects tell the owners to contact the elevator manufacturer, for example, to inquire whether the programming of the elevator controls may be susceptible to Y2K problems. The architects should note clearly that, in writing the letter, they are not accepting or admitting any liability for potential problems but rather doing this solely as a courtesy. Buchalter notes that courts may favor a good faith effort to warn clients over a head-in-the-sand approach.

The most important reason for architects to notify clients is not merely to avoid liability when a failure occurs but to reduce the likelihood of problems—which can be dangerous to occupants and building users—by motivating the clients to take corrective actions, Hancks says. That may mean contacting manufacturers to see if they have any upgraded software or equipment that can be installed.

However, the cost of these upgrades, or of replacing equipment altogether, can be expensive—in the billions of dollars nationally, according to BOMA. As a result, even before 2000 there may be lawsuits over who is responsible for paying these costs.

Insuring against the worst case

If disaster occurs, will the insurance companies be there to back up the architect? Few insurance companies that cover design-professional liability are now making exclusions for Y2K problems. That's good news. But architects should examine their policies carefully and work with their brokers to make sure such an exclusion is not inserted in



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ıe future. Ironically, this means that if design professionals are insured ıd their clients are not, the architects will have the deeper pockets and ıerefore will be more vulnerable when building owners look for some-ne to pay for damages.

Some companies that insure building owners are excluding ıch coverage. A standard Lloyds of London–approved electronic-date-cognition exclusion states that the policy does not cover any loss or ımage, whether direct or indirect, relating to the change to the year 2000 any computer system relating to the year 2000, according to the chinnerer article.

Most reasonable people would agree that architects are not at ult for potential systems failures due to Y2K-faulty chips. But will that rotect them from being dragged into court? Attorney Weisbach expects ıat the judicial system will bring some equilibrium to the situation if the umber of lawsuits gets out of hand. Otherwise, not only will the Y2K-lated systems fall apart, but the court system also.

Despite these grim scenarios, some observers are finding silver nings. Richard W. Hobbs, FAIA, professional practice vice president of ıe AIA, suggests that architects should consider the coming challenge as potential business opportunity. Many clients, he says, seek a more inte-ated process for managing a building's entire life cycle. "I think the chitect could be the one to coordinate that process. If we now had clear formation about each of the vulnerable building systems, we could ve the client by assessing their facilities and identifying which ones eeded to be corrected," he says.

This role of project information coordinator wouldn't require chitects to take responsibility for the systems, only to define who among building's consultants and contractors should get involved in solutions. o architects with the foresight and technical savvy to have their own Y2K tuation under control, such a leadership role may already offer an ttractive opportunity.

omputer surprises

rchitectural firms that haven't begun to prepare their own computer sys-ms for Y2K should move immediately into triage mode, prioritizing ose projects that carry the greatest risk and are achievable by year's end.

Remediation will be expensive. Knowledgeable programmers ıd consultants are becoming harder to find and commanding higher es. Upgrading or buying new hardware and software may mean extra aining time and costs. Also, retraining the firm's staff may temporarily wer productivity.

Even simply replacing all internal hardware and software won't lve every problem. New software could still create errors when pro-essing old data that is in the two-digit format. Moreover, unexpected ings may happen when the data is combined, says architect Robert itger, director of CAD operations for The Hillier Group in Princeton, lew Jersey. "I suspect that certain untested combinations of software nd operating systems are going to throw us a few unanticipated sur-rises," he says.

Ritger has been diligent about anticipating Y2K issues and solu-ons. His firm has already tested and developed replacement plans for all f the firm's hardware. He also has plugged in Y2K-compliant software leleases for the firm's major systems. In general, he is confident about The lillier Group's future operations, though, he says, "I don't expect a per-ctly smooth ride into the new millennium."

To mitigate the effects of unexpected problems, it is wise to evelop a contingency plan for failures such as power outages, system rashes, bad data, and loss of communications. *(continued on page 168)*

YEAR 2000 RESOURCES ON THE WORLD WIDE WEB

The news is filled with reports of problems that the millennium bug will cause—everything from nuclear disasters to botched operations. While these problems may be overestimated, it's worthwhile for architects and others involved in the building industry to be as familiar with the problem as possible.

There are plenty of books, CD-ROMs, and videos available on the subject, but for the most up-to-date information on the Y2K bug, turn to these Web sites.

American Institute of Architects *The AIA provides specific information for architects regarding the year 2000, with links to related sites.*
http://www.e-architect.com/pia/y2k/y2kissue.htm

Building Owners and Managers Association *BOMA provides guides for property professionals about assessing potential problems and preparing buildings for the year 2000.*
http://www.boma.org/year2000/

CNA Financial Corporation *CNA, a design-profession insurer, gives a compliance review list, testing criteria, and sources for vendor information.*
http://www.cna.com/cna/html/y2k1.html

CNET *CNET, a producer of Web sites and TV programming about computers, the Internet, and digital technologies, offers tips on testing and fixing hardware and software, plus links to sites about the effects of Y2K on the government and the economy.*
http://www.cnet.com/Content/Reports/Special/Y2K/

CIO Magazine *This publication for corporate chief information officers offers advice and resources for guiding a firm through its systems conversions.*
http://www.cio.com/forums/y2k/

DPIC Companies *DPIC, a trade group of professional liability insurance companies, issues a policyholder alert and a checklist for preparedness, and explains rights and liabilities.*
http://www.dpic.com/Y2kweb.html

Information Technology Association of America *The ITAA offers a summary of Y2K-related state and federal legislative proposals and lawsuits.*
http://www.itaa.org/Y2Klaw.htm

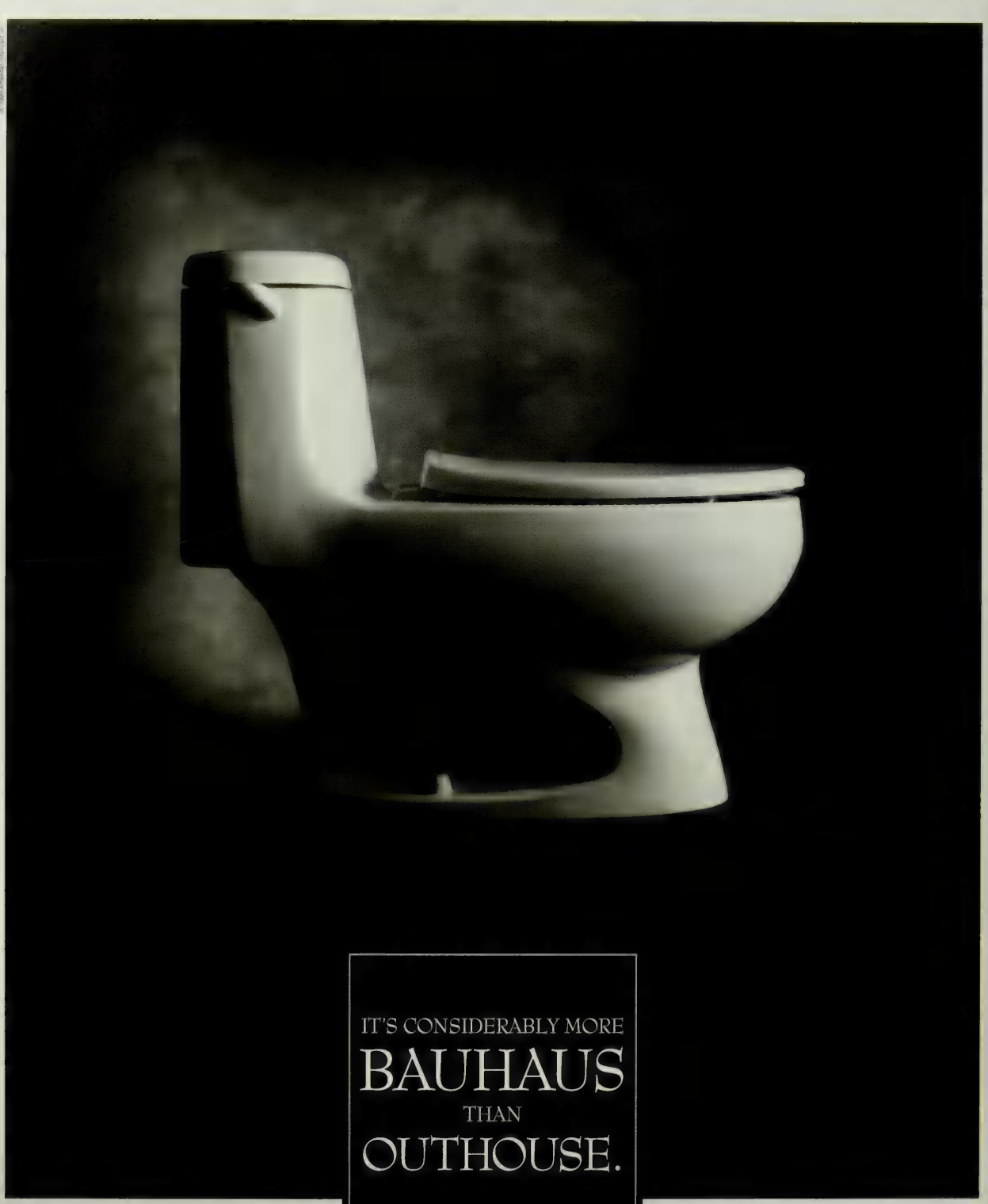
The MITRE Corporation *MITRE, which performs research and development in systems engineering and integration for the Department of Defense and the Federal Aviation Administration, provides links to Y2K tools, services, and statements of compliance from commercial software and hardware vendors. The site also describes steps to take, certification processes, testing procedures, and contingency planning.*
http://www.mitre.org/research/y2k

PlanetAEC *This resource guide sponsored by Schinnerer and CNA reprints an article from the September 1997 issue of* Mechanical Engineering *that dramatizes the effects of embedded bugs on mechanical systems in buildings and manufacturing.*
http://www.planetaec.com/contractors/feature/mayhem.html

Victor O. Schinnerer *Schinnerer, the underwriting manager of professional liability insurance and risk management programs, describes your risks, costs, and responsibilities in the article "Approaching the Millennium."*
http://www.schinnerer.com/millennGUIDE.htm

The Tenagra Corporation *Tenagra, an Internet marketing and consulting firm, provides news and articles about the millennium bug and an extensive list of Y2K-related consultants and software vendors.*
http://www.year2000.com

U.S. Small Business Administration *The SBA describes the problem from the perspective of small business owners, including steps to take and self-assessment guidelines, and provides links to related sites.*
http://www.sba.gov/y2k/



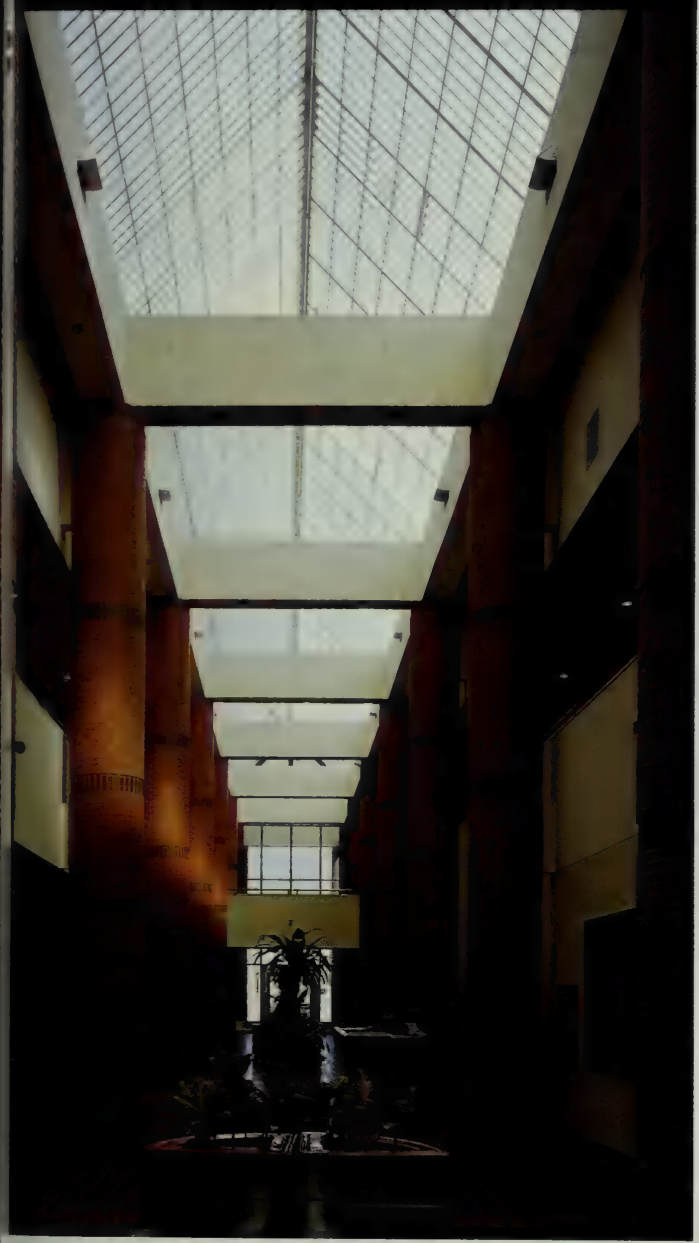
The exhibit: the Savona™ toilet. The lines are clean, the design straightforward. Yet there's a certain...voluptuousness to it that sets it apart from the merely utilitarian. To learn more call 1-800-524-9797, ext. 501. www.americanstandard-us.com. *American Standard*

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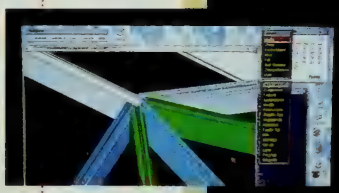
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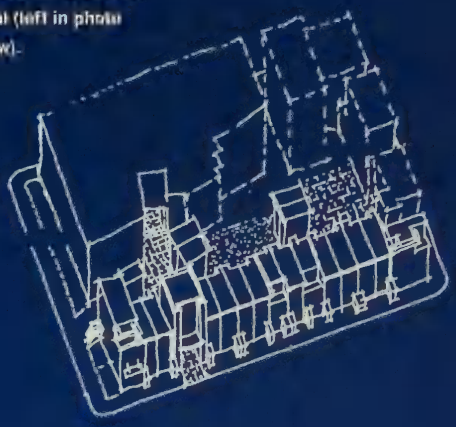
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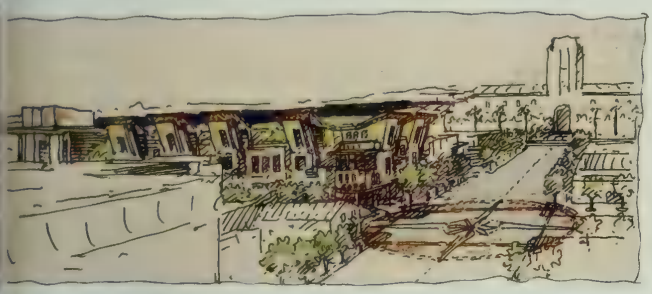
The development includes buildings by Rob Wellington Quigley (opposite, and under construction in photo left), Smith & Others (right in photo below), Public (center in photo below), and Jonathan Segal (left in photo below).





At the LITTLE ITALY NEIGHBORHOOD DEVELOPMENT a group of San Diego architects-turned-developers push the housing envelope.

by Clifford A. Pearson



This is the story of a group of architects who put their money and sweat where their mouths were. Instead of bemoaning how formula-driven most housing design had become, they took on new roles such as developer and contractor. Their hope was to eate a project that offered alternatives to the cookie-cutter apartments d townhouses that dominate the market. The focus of their attention as a full city block in the Little Italy neighborhood of downtown San iego, which the architects divided up among themselves and set about uilding in their own quirky ways. Much of their work is now done: two rts of the block are completed, a third will be finished this spring, and ourth will be occupied next year. Already the project is showing there is mand for nontraditional housing downtown and attracting a more verse set of residents to a once-marginal neighborhood.

The story began in the early 1990s with a handful of designers San Diego who were exploring alternative housing types: projects with xible spaces, or loft spaces, or separate lofts that shared workspaces. The arket for these kinds of innovative residences was not huge, but it was owing as more young professionals began working from home. Large velopers weren't interested in such niche markets, so architects began veloping projects themselves. By keeping the scope small and doing uch of the contracting, such architect-developers reduced their risks id proved that these approaches could attract buyers and renters.

When the Centre City Development Corporation (CCDC)—a iblic, nonprofit agency created by the city of San Diego to implement wntown redevelopment activities—requested proposals in February 95 to develop an entire city block in Little Italy, some of these architect-velopers were excited by the opportunity. But the 200-by-300-foot block was too big for any one of these players to handle alone. In response, a group of them banded together as the Little Italy Neighborhood Developers (LIND) and put together a comprehensive proposal that allowed each designer to work on an individual parcel.

One of the design goals included in the request for proposals was "to avoid the appearance of large, full-block development and to instead create the appearance of a series of smaller individual projects varying in size, character, and scale." According to Pamela Hamilton, senior vice president of the CCDC, and Janice Weinrick, vice president of real estate operations for the CCDC, the LIND proposal did the best job of meeting this goal. And LIND participants such as Rob Wellington Quigley, FAIA, Ted Smith, Jonathan Segal, AIA, and James Brown had long been active in projects downtown and were well regarded by Little Italy residents. "LIND was the neighborhood favorite," states Hamilton; the CCDC selected LIND as the site's developers later that year.

Breaking away from formulas

Rather than build the usual—four floors of apartments over one floor of parking, or the equally common townhouses over parking—the LIND proposal offered a range of housing types, such as Segal's "convertible" townhouses, whose spaces can double as home offices or separate apartments; buildings by Smith & Others and Public (Brown and James Gates) that feature three floors of residential lofts over one level of commercial or residential space; and a 37-unit apartment building by Quigley. The development also included renovating the existing Harbor Marine building, a simple two-story structure, for industrial space on the ground floor and apartments above, and building a small mixed-use structure next to Quigley's family-oriented apartment building.

AS THEY DIVIDED THE SITE AMONG THEMSELVES, THE ARCHITECTS ENGAGED IN "MILITARY CAMPAIGNS" FOR LAND.

All of the projects within the block, except for Quigley's, feature flexible numbers of dwelling units. Convertible spaces are a key ingredient in Kettner Row, Segal's townhouse project. In Brown and Gates's building, the first floor is equipped with multiple bathrooms and kitchens, although it is currently being used as one large loft. And the Merrimac Building, designed by Smith and Lloyd Russell, offers unusual lofts that

can share work spaces while retaining separate entrances, sleeping areas, and bathrooms.

The city sold land for the rental housing parcels for a dollar each, since these projects would include units for low- and moderate-income residents. However, the land for Segal's townhouse development, which consists of units for sale, was sold by the city at market value. Although most of the architects acted as their own developers, Quigley, who had the largest project, brought in an established company, Barone Galasso. Kathleen McCormick also worked with them on a retail/commercial/residential building set to start construction soon.

The master plan for the entire block was developed by Smith and Russell, with input from all of the participants. In fact, the process of dividing up the site was anything but simple. To accommodate the various parking, vehicular access, and fire egress needs of each piece of the development puzzle, the architects provided a series of easements from one parcel to another. As individual designs were refined, property lines were adjusted. "We wanted to protect each other's views, light, and access," explains Brown, "so the pieces on the board kept moving. It was a fun process, but it drove the CCDC people crazy."

"IT'S A PLATE OF SPAGHETTI WITH EASEMENTS ALL OVER THE PLACE," SAYS ONE OFFICIAL. NEXT TIME THEY'LL SIMPLIFY PROPERTY LINES.

Master planning is war

Describing the give-and-take planning process, Smith enjoys referring to it as "a military campaign" in which one architect would attack another's parcel and steal a little land, then watch as his neighbor invaded a third person's property. Segal recalls some tough negotiating between architects, but he also paints a positive picture: "We're all strong-willed people and we went back and forth quite a bit. But I don't think we ever blew up or lost it. We all enjoyed it."

The CCDC had worked with multiple developers in the past, but only on large urban renewal projects. As it turned out, the multiple personalities behind the project were both its strength and its weakness. Everyone likes how the block resembles a series of pieces that grew over time. "The project really looks good," comments Weinrick. "And it provides very different kinds of housing on one block: rental, for-sale, live-work, family housing—all kinds of options. It's a microcosm of what we want to achieve in downtown as a whole." The variety of housing types makes it possible for people to stay on the same block even as their needs change over time. For example, a person just starting a career could rent one of the granny flats at Kettner Row or one of the small lofts at the Dutra-Brown Building, then, as needs and income grow, buy a townhouse or rent a large loft. If the person wanted to set up a business at home, the lofts and convertible townhouses could provide space for that too.

The architects and the CCDC agree that all the property easements made the project more complicated than it had to be. "It's like a plate of spaghetti with reciprocal easements all over the place," states Hamilton. Smith concurs, saying that in the future he would give each player a part of the site and stay away from easements.

The city and the architects knew from the beginning that this would be a model project and that innovations are difficult. "We saw this block as a showcase," recalls Weinrick. "We wanted to show how urban infill could work downtown." The project's density is slightly less than 48 dwelling units to the acre, about a third less than what the CCDC would like to achieve in downtown overall, says Weinrick. She points out that the two courtyards in the center of the block and the generous amount of private outdoor space for the townhouses are welcome amenities for the residents. But to meet the CCDC's goal of attracting 30,000 more residents downtown in the next 20 years, future projects will have to achieve a higher density.

While the project fulfills the city's requirement of half a parking space per dwelling unit, the CCDC would have preferred more parking since some townhouse owners are renting part of their property to other people (an arrangement that is allowed in this area). A single developer for the entire block might have been able to fit more parking on the site, says Weinrick.

There is little doubt, though, that the project is a success. A year after Segal's townhouses opened, they have already appreciated significantly, going from a range of $190,000 to $250,000 to a new plateau of $260,000 to $320,000, says the architect-developer. Urbanistically, the project has started to change the image of its surrounding neighborhood. "It's a very good billboard for downtown," remarks Weinrick. "The message it sends is that downtown is where things are happening. Everybody knows about it. That's just what we want." ■



1. **Kettner Row** *(Jonathan Segal, architect and developer)*
2. **Dutra-Brown Building** *(Public, architect; Smith & Others, developer)*
3. **Merrimac Building** *(Ted Smith/Lloyd Russell, architect; Smith & Others, developer)*
4. **Harbor Marine renovation** *(Robin Brisebois, architect; Smith & Others, developer)*
5. **Little Italy mixed-use building** *(Kathleen McCormick, Smith & Others, architect; Barone Galasso, developer)*
6. **Little Italy Family Housing** *(Rob Wellington Quigley, architect; Barone Galasso, developer)*

THE DUTRA-BROWN BUILDING PACKS SMALL LOFTS WITH BIG VOLUMES ONTO A TIGHT SITE

Working with the smallest parcel on the block (just 3,160 square feet), James Brown and James Gates designed a rugged hybrid that changes structure and character as it rises from street to roof. From a 20-foot-high base of exposed concrete block, the building morphs into a wood-frame, galvanized-metal-clad enclosure and then into a painted-wood penthouse.

Inside, the individual living units expand vertically, rising 19 feet 4 inches on the ground floor and 20 feet on the second. Although relatively small (from 500 to 1,150 square feet), the residences feel big and have the swagger of SoHo lofts. Like most of the other projects on the block, the Dutra-Brown Building has a flexible number of units. This is achieved by equipping the ground floor with three full bathrooms and two kitchens, so that the space can be rented out as one unit or divided into two or three. It is currently one large live-work space. The entire building is sprinklered, which allows it to rise to 50 feet rather than 40.

Project: *Dutra-Brown Building*
Owners: *James Brown and Isabel Dutra*
Developer: *Smith & Others*
Architect: *Public—James Brown and James Gates, partners*
Structural Engineer: *MSA & Associates*
Landscape Architect: *Spurlock Poirier*





The architects used industrial materials such as concrete block, poured concrete, galvanized metal cladding, and old steel windows rescued from a Navy warehouse that was being demolished. Parking is provided on the street and behind the building.



Brown and Gates, who call their design firm Public, always work as general contractors on their projects and usually do much of the building themselves. In addition to architecture, they also design and sometimes build furniture. In the Dutra-Brown Building their hands-on approach can be seen in the way they embedded pieces of industrial detritus such as metal gears in concrete and incorporated salvaged building components such as rusting metal door fronts and windows from a U.S. Navy warehouse in the construction. "We like being in touch with the materials," explains Brown.

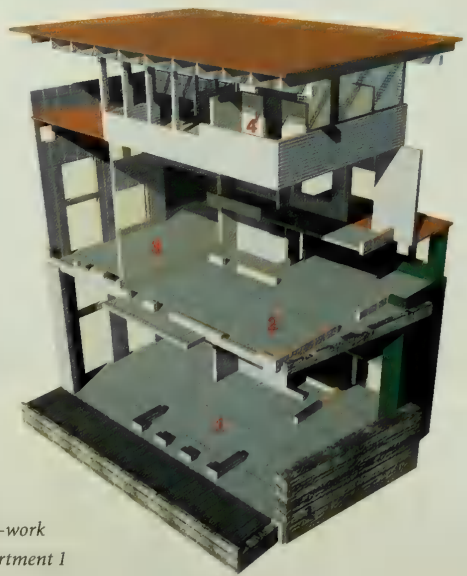
Thanks to the floor-to-floor height, there is room for a mezzanine level or sleeping loft in every unit. Each residence also has at least one outdoor space, ranging from a 140-square-foot deck off an apartment on the second floor to a 325-square-foot roof deck adjacent to the small penthouse unit. One of the second-floor apartments has both a balcony on the front of the building and a deck on the back.

Providing access to all levels, including the mezzanines, an outdoor stair on the back of the building rises within a structure of six-by-six pressure-treated timbers. Rolled-steel railings and dark green asphalt shingles complete the palette of industrial materials here.

Brown and Gates had never worked as developers before and were brought into the Little Italy block by Ted Smith. "It was stressful worrying if we had enough money to build the project," admits Brown. "But I absolutely would do it again." *C.A.P.*

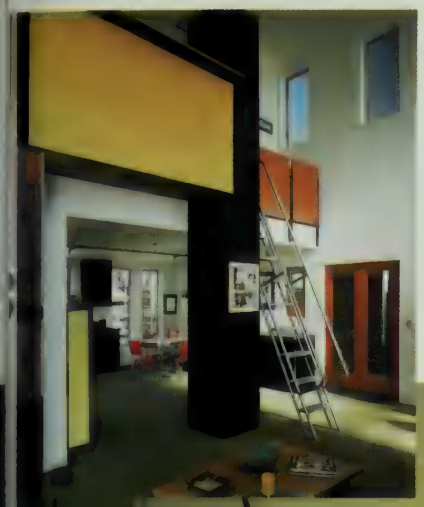
Sources

Galvanized metal siding: *Simmons Sheet Metal Fabricators*
Roof decking: *Spaeth Deck*
Painted casement windows: *Woodmaster Windows*
Aluminum casement windows: *Milgard*
Metal doors and balconies: *DeForm*
Cabinets: *AW Design and Woodwork*
Hardware: *Schlage*
Fire doors: *Timely*



1. *Live-work*
2. *Apartment 1*
3. *Apartment 2*
4. *Penthouse*





Each unit has a mezzanine reached by ladder (left). The ground floor, currently being used as one space, has three entrances and bathrooms so it can be divided in several ways (below). Developing the project themselves allowed the architects to experiment with materials, such as surfacing indoor floors with a latex-modified concrete normally used outdoors (opposite bottom).

KETTNER ROW OFFERS CONVERTIBLE SPACES FOR YOUNG PROFESSIONALS



Jonathan Segal, AIA, knew his market well: young professionals in their 20s and 30s who want a house with traditional proportions but modern flair. His design for Kettner Row, a set of 16 for-sale townhouses, strikes some familiar chords: front stoops and straightforward elevations that are clearly organized into base, middle, and top. But it also has a few hip features—clean lines inspired by early 20th-century Vienna Seccessionist buildings and two-story-high living spaces inside.

Segal also knew that some of the people who would like the rowhouses would need help making the mortgage payments. So he designed some of the units as "convertible" townhouses with ground-floor spaces that can be rented out as small apartments or used as offices. Five of the townhouses also have granny flats above garages that can be rented out. The extra income from these apartments can make all the difference to a young homeowner. "It's a way of dealing with the high cost of housing in California," says Segal. The convertible nature of the townhouses also means that people can grow into their homes, taking over the rental units when their incomes expand and even setting up their own businesses in ground-floor office spaces.

Set on 15-by-80-foot lots, the rowhouses have small backyards. "Most places downtown don't have any outdoor space, so a backyard is a real amenity," says Segal. There are four basic types of houses in the project: standard rowhouses, convertible rowhouses, granny flats over garages, and triplexes. Because many of the 16 properties have rentable units, as many as 26 different dwellings may be accommodated.

Each of the standard rowhouses has a single garage off the street, while the convertible units have either garages or parking spots in the rear. By making the garages 10 feet high, the architect provided enough space for people to install car lifts that allow two cars to be parked, one on top of the other.

Townhouses range from 1,250

Project: *Kettner Row*
Developer: *Jonathan Segal*
Architect: *Jonathan Segal, AIA—Jonathan Segal, Hussien Monaim, Chris Fassler, Brett Farrow, Wendy Segal, Rebecca Golden, project team*
Structural Engineer: *Dodd and Associates*
Landscape Architect: *Spurlock Poirier*
Color consultant: *Kathleen McCormick*
General Contractor: *Zieman Shields*



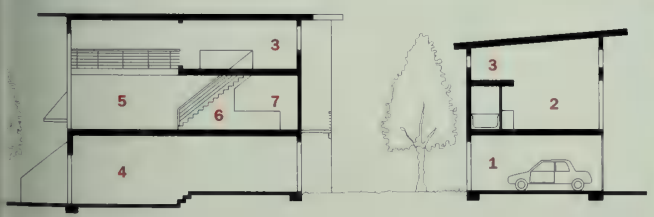
SITE PLAN

1. *Triplex*
2. *Convertible rowhouse*
3. *Standard rowhouse*
4. *Granny flat*

Rowhouses face the street with front stoops (above and opposite top). The one triplex (left in photo, opposite bottom) anchors the row. An auto court provides access to garages and two granny flats (right).







ON - ROWHOUSE

SECTION - GRANNY FLAT

1. *Garage*
2. *Granny flat*
3. *Sleeping loft*
4. *Office or apartment*
5. *Living*
6. *Dining*
7. *Kitchen*



to 1,850 square feet; the one triplex on the northeast corner of the site has 2,200 square feet.

Because the units are sold as fee-simple transactions, not condominiums, they don't require sprinklers and have less stringent requirements for accessibility and fire egress. To further reduce costs, Segal used concrete for all floors and kept parking on grade. By working as both developer and architect, Segal could make adjustments on site without incurring big costs. "I can change drawings a lot cheaper than a typical developer can," he says.

On the inside, though, the architect provided some luxurious touches, including granite counters and living spaces that soar to two stories (between 17 and 19 feet high).

Construction is simple: wood framing (two-by-fours and two-by-sixes) on concrete slab with stucco exteriors. "Originally we were going to do the exteriors in all white," recalls Segal. "Then we brought Kathy McCormick in and she helped us work on some colors." The resulting palette ranges from whites to greens and helps break down the long Kettner Boulevard elevation into various pieces.

A savvy businessperson, Segal is now working on a handful of projects, all of which he is developing. *C.A.P.*

Sources

Aluminum windows and curtain wall: *U.S. Aluminum*
Built-up roofing: *Mansville*
Locksets: *Schlage*
Custom wood cabinetwork: *AIA Design*
Enamel paint: *Frazee Paints*
Indoor ambient lights: *Cooper Lighting (Halo)*

The project has four basic types of units: convertible rowhouses (floor plans above), standard rowhouses, granny flats, and a triplex (photos this page and opposite).



1. *Garage or office*
2. *Office or apartment*
3. *Living*
4. *Dining*
5. *Kitchen*
6. *Bedroom*



THIRD FLOOR



SECOND FLOOR



FIRST FLOOR





Living spaces that rise as high as 19 feet and multiple exposures provide natural ventilation. Although the units have air-conditioning, one resident says he rarely needs to turn it on.



The wood-slatted brise-soleil over glass and aluminum panels visually dematerializes the building's cylindrical volume by day (above) and night (opposite top). Refining the familiar McDonald's logo, the architects painted shadowed arches on the building and designed Golden Arches in hollow perforated metal (opposite).

Heikkinen-Komonen's McDONALD'S FINLAND HEADQUARTERS seasons the burger empire's image with architectural finesse.



by Peter MacKeith

We have a remarkable building," McDonald's Finland president Kim Hanslin says with pride, "a building that has created a new image for McDonald's in Finland." In corporate culture, such appreciation is hard to come by—but can architecture really enhance McDonald's? The simple answer is yes, at least in business terms and in the skillful hands of Finnish architects Mikko Heikkinen and Markku Komonen. McDonald's worldwide has not emphasized a unique or contemporary quality in its buildings, but the shimmering, cylindrical Helsinki headquarters is exceptional.

Lying at the western edge of the city center, where the dense urban fabric meets the Helsinki peninsula's coastline, the site is bound to the south by an arterial boulevard, to the east by housing complexes (which some critics have labeled "an outrage"), and to the north and west by an inland bay. While views across the bay reveal pastel-toned housing, the immediate wooded surroundings—and views south toward the Gulf of Finland—provided inspiration.



In choosing Heikkinen-Komonen Architects for the commission, Hanslin considered the firm's Finnish Chancery in Washington, D.C., decisive. Hanslin admired the elegant restraint of the design and the way the landscape enters the luminous interior. With an inventive economy of means, the chancery's strict boxlike volume, articulated by a legible structural frame and a limited palette of carefully detailed materials, establishes a strong relationship to its site. The sheer tactile force of the materials—polished granite, pale green glass, and patinaed copper and bronze—charges the austere environment. A tendency to create more with less characterizes the architects' work, and brought their firm the McDonald's commission.

"Our interest is in making good buildings," Komonen asserts, "and at McDonald's, we were asked to produce a good working environment, not simply sharpen the company's profile in Finland." The architects were drawn to many aspects of the project: the urban site, the idea of creating a commercial building with a public character, and the opportunity to play with one of the best-known logos in the universe. "But," adds Komonen, "we were given free hands: no McStyle was told to us."

For the architects, the site—not the corporate image—dictated many design choices, leading them to build a singular monolith: a Platonic presence, calculated for its catalytic effect on the surroundings. "The cylindrical form," says Heikkinen, "resulted from the site's exceptional character. We perceived the city structure as an unfinished urban wall, requiring a terminus." The building is a focal point for views from 360 degrees around, while its curving wall opens the interior to panoramas.

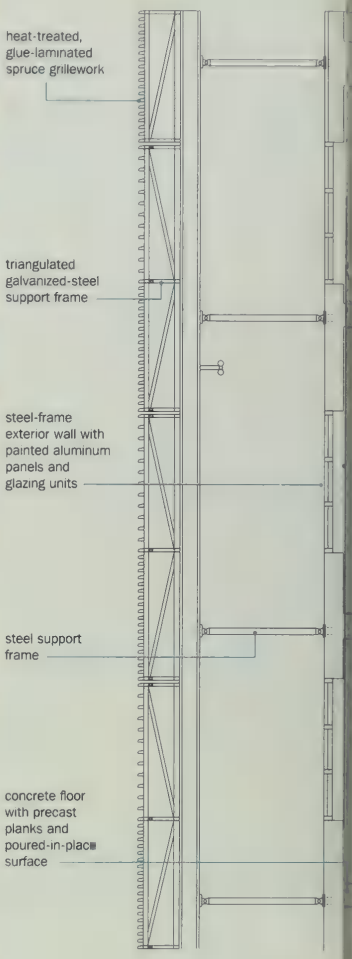
To link the cylinder's surrounding ground plane with the waterfront, landscape architect Gretel Hemgård planted an allée of trees with grassy, wavelike knolls to create a forced perspective and line of movement toward the water's edge. A border of wooden docks is expected to draw boaters and ice-fishers to the headquarters' McDonald's restaurant.

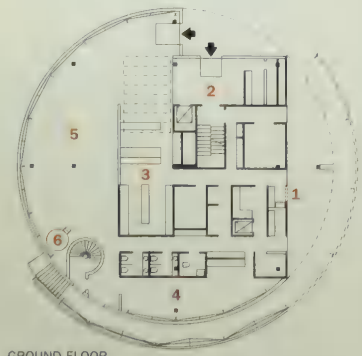
In this building, as in the Washington chancery, the architects devised a subtle combination of complex geometries, structural grids, and distinctive materials. They overlaid the six-story cylinder with a grid of concrete-filled steel columns. Within this composition, five levels of administration above the restaurant were designed with sensitivity to functional and sectional relationships—notably the restaurant-

Peter MacKeith directs the international architecture Master Program at Helsinki University of Technology.

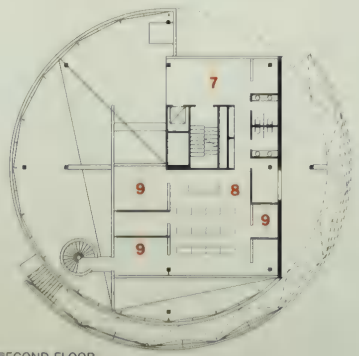
Project: *McDonald's Finland Headquarters, Helsinki*
Architect: *Heikkinen-Komonen Architects—Mikko Heikkinen and Markku Komonen, principals*
Engineers: *Magnus Malmberg / HN-Suunnittelu (structural); Vesi-Projectus Team (mechanical/electrical/plumbing)*
General Contractor: *Skanska Etelä-Suomi*



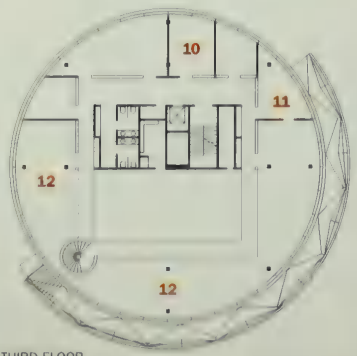




GROUND FLOOR



SECOND FLOOR



THIRD FLOOR

0 50 FT.
15 M.

N

1. *Drive-through lane*
2. *Office lobby*
3. *Restaurant kitchen*
4. *Staff dining/party room*
5. *Restaurant*
6. *Children's play area*
7. *Management-training lobby*
8. *Lecture hall*
9. *Group work rooms*
10. *Conference*
11. *Offices*
12. *Open work stations*





Hardly a typical McDonald's, the curving, light-filled restaurant has panoramic views partly filtered through a wooden brise-soleil (left). In homage to Stanley Meston's early McDonald's design (below), Heikkinen and Komonen's restaurant features a whimsical, rhythmic mobile that incorporates the frames of 1950s "bat" chairs (above).

management-training area's overlook onto the double-height restaurant.

Elevators, restrooms, and mechanical shafts are tightly held in the cylinder's orthogonal core, with its stack culminating in a caplike mechanical room hovering above a roof terrace. While public and workspaces are concentrated toward the curving outer wall, the structural grid is skillfully expressed at each level. At grade, for instance, the dominant arc cuts back along the grid to create a glassed entry for the restaurant and offices. Glazed walls between conference areas and offices also follow the orthogonal system, clearly and decisively integrating the two geometries.

The tower's horizontally articulated green aluminum-panel-and-glass skin is partially wrapped by a brise-soleil of laminated wooden strips on a triangulated steel frame. Heikkinen and Komonen's facades rarely incorporate standardized framing systems, but here the architects fastened standard-profile components with open joints over a waterproof barrier. The effect is a delicate structure with a taut surface.

The wooden brise-soleil commands the most attention. Its glue-laminated, heat-treated spruce was kiln-dried by a method developed at the Finnish State Technical Research Center. The heat removes moisture from the softwood's cells, increasing its weather resistance to the level of a tropical species without impregnating agents. McDonald's showcases the first large-scale commercial use of this technique, in a manner transcending function. Filtering direct views of the landscape, the sun-break produces a complex dialogue between inside and outside. The layering of aluminum and glass with wood softens the perimeter of the idealized volume, causing it to shimmer and visually dematerialize.

The facade's predominant transparency opens the entire interior to sunlight and views. While Finnish building codes mandate a natural light source for all employees, the open plan and glass partitions render this workplace especially luminous and airy. An unscreened, double-height glass wall illuminates the restaurant. Serving and dining areas have the gleam and bustle of a typical McDonald's, but the soaring ceiling height, deftly redesigned graphics, and frank expression of structure and materials make this restaurant singular. Office-level interiors, by contrast, have a calm and purposeful atmosphere, enhanced by the clarity of open plans, crisp detailing, and simple, custom-designed furniture.



The Big Mac sells well at at 60 degrees north latitude. McDonald's Finland plans to open its 100th restaurant this year—an event to be marked by a Finnish replica of Stanley Meston's 1950s design for the first McDonald's. A mural of Meston's building borders the seating area.

For all his emphasis on the company's good name, Hanslin initially resisted the bold placement of McDonald's Golden Arches on the building: "Too much of the trademark and it would have jumped at you," he says, "but finally I felt the logo should go on the building in a shadowed way." Heikkinen and Komonen reveal it with characteristic irony and skill: a gray-painted superscale "shadow" of the great arches hovers across the building's grilled surface while, facing the boulevard, a pair of hollow yellow perforated-metal arches stands atop a blue clinker-tile acoustic wall—adding a refined touch of roadside "pop." ■

Sources
Curtain wall: *Teräselementti*
Glass: *Saint-Gobain*
Elevator: *Kone*
Doors: *Impera (metal); Alavuden Puunjalostustehdas (wooden); Nordic Aluminum (sliding)*
Locksets: *Abloy*



John McAslan creates a concrete-and-glass caravansary for the YAPI KREDI OPERATIONS CENTER near Istanbul.

by Hugh Pearman



If the office workforce is a "family," as current thinking goes, then what should the family "home" be like? Homes are generally all about interiors, where, except for some famously extroverted cases, the plan and section are more important than the elevation. Since the Yapi Kredi Operations Center in Gebze, Turkey, is all about plan and section, one could argue that its fundamental organizing principle is that of a house—but it is a very large house. Designed by the London-based architectural firm John McAslan & Partners for a leading Turkish financial institution, the complex provides a spacious, 538,000-square-foot, back-office facility for 1,500 employees and the bank's main computer data-processing and storage equipment.

Indeed, as with other pioneering people-oriented office buildings such as Herman Hertzberger's Centraal Beheer headquarters in Apeldoorn, Netherlands (1968–72), or Niels Torp's British Airways headquarters in London (1996–98), the Yapi Kredi building looks almost as if the exterior elevations were an afterthought. They are functionalist in the truly modernist sense, expressing exactly what is happening inside. Few grace notes occur on the outside, except for the odd spiraling escape stair or tensile-fabric entrance canopy.

John McAslan has had little time for rhetorical gestures in his design. One of the most successful young architects to emerge in Britain in the 1980s, at first in partnership with Jamie Troughton, then on his own after 1996, McAslan is too serious and committed a modernist for such flourishes. Having worked for Cambridge Seven in Boston in the late 1970s, and then for Richard Rogers, McAslan never gave a moment's thought to the postmodern fad that engulfed Great Britain in the 1980s. He is clearly influenced by the architecture of Louis Kahn and has a healthy regard for that old romantic Frank Lloyd Wright, whose buildings at Florida Southern College in Lakeland he is restoring. Of his generation of British architects, he has perhaps the most international practice: apart from his American work, he has built St. Catherine's College, Oxford, in Kobe, Japan, and is undertaking a large headquarters complex for the Max Mara Fashion Group in Reggio Emilia, Italy. He has also designed the front office building for Yapi Kredi in Istanbul.

Office blocks (above) step down a hilly 57-acre site (phase one model, below). Spiral stairs (opposite) animate the south facade.

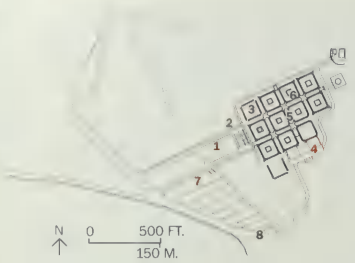


The operations center in Gebze, some 30 miles southeast of Istanbul, sits at the edge of town, sited on a hill that slopes down to the Sea of Marmara. The terrain is dramatic and arid; its relative remoteness presupposes a self-contained working community—less like a family home in this sense, perhaps, and more like a monastery.

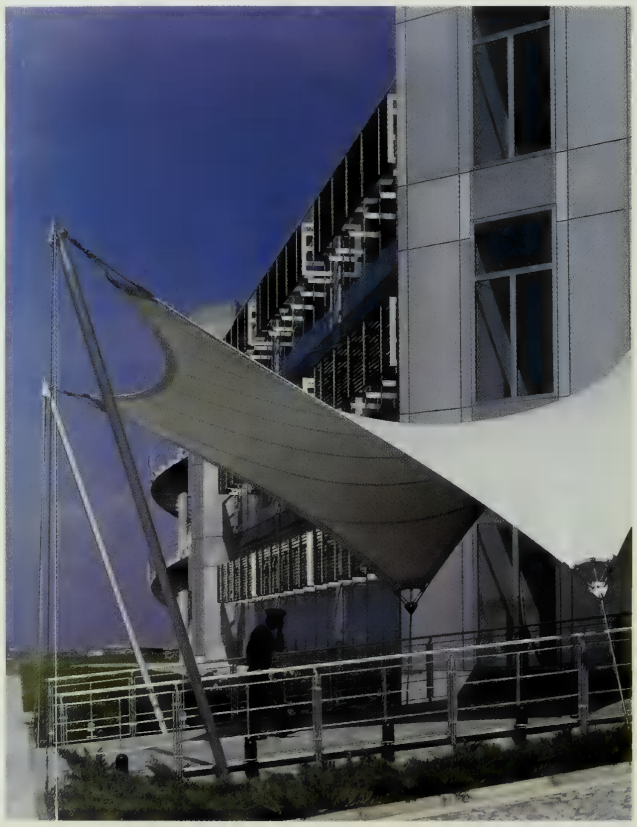
McAslan found various pressing reasons to adopt an inward focus. The first is that the interiorized approach, seen in the covered

Project: *Yapi Kredi Operations Center, Gebze, Turkey*
Owner: *Yapi Kredi Bank*
Architect: *John McAslan & Partners—Hiro Aso, Adrian Friend, Nick Eldridge, Andrew Hapgood, Kevin Lloyd, Catherine Martin, John McAslan, Aiden Potter, Judith Quartson, Piers Smerin, Jamie Troughton, Raj Rooprai, Roger Wu, design team*
Architectural consultant: *Godfrey Goodwin* *(continued on last page of story)*

Hugh Pearman is the architecture and design critic of The Sunday Times, *London. His latest book,* Contemporary World Architecture, *is published by Phaidon.*



1. *Access bridge*
2. *Entrance plaza*
3. *External courtyard*
4. *Service yard*
5. *Fabric roof*
6. *Typical office block with interior court*
7. *Car park*
8. *Service access*



courtyard, the souk, and the *han* (or caravansary), has evolved over cen turies as a pragmatic response to the climate of the Eastern Mediterra nean, with its extremes in hot and cold temperatures. To this tradition McAslan brought a flexible, modular building arrangement that achieve similar effects with current-day technology. The freestanding linked pavil ions, 115 feet square and each with a central courtyard, are pulled slightly apart on the grid, creating a second internal world. This climate-controlled streetscape, glazed and covered with fabric canopies, provides areas where the office community can spill out into cafés, gardens, and meeting places. The overall impression of the building is created by the in-between spaces of the intersecting grid of streets.

The urban-grid-like quality of the complex's interior means tha this inside-out architecture is the opposite of, say, a dressed-to-kill specu ulative midtown office building where the fancy facade hides standard layouts. What might be a secondary element in a conventional building assumes a primary importance here. Cylindrical concrete elevator core wrapped by precast-concrete stairs with glass balustrades, and steel land

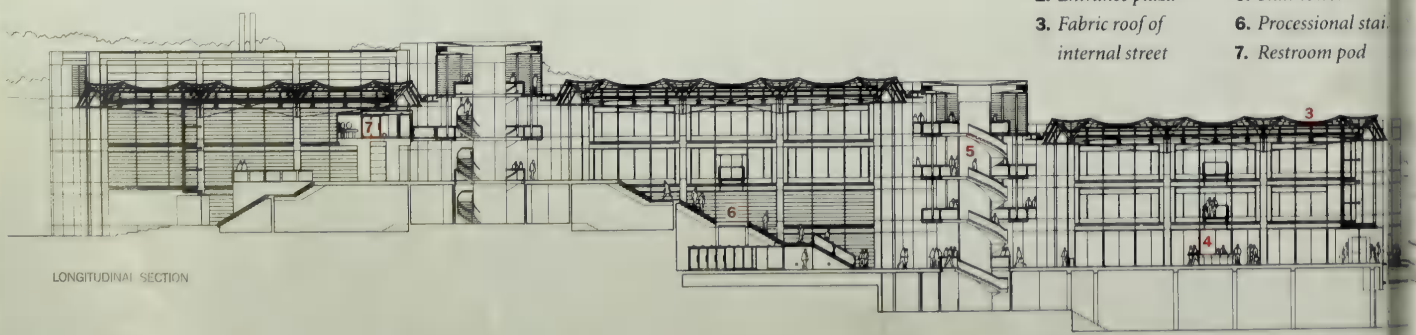
THIS INSIDE-OUT ARCHITECTURE IS THE OPPOSITE OF A DRESSED-TO-KILL SPECULATIVE OFFICE BUILDING.

ings with glass floors, form key nodes at the intersection points of th pavilions. Additional spiral stairs activate the corners on the perimeter o the complex. These freestanding cylinders at the nodes create genuin architectonic drama, in which the circular, spiraling lines soften the inten sity of the orthogonal grid as they draw the eye up and around th corners of the blocks.

The cylinders vary in form: some are open spirals, some ar enclosed in translucent glass bricks, and often they are attached to hemi spherical stacks of restrooms. These "servant" spaces are vital to th composition of the whole, particularly where these robotic objects wit their outstretched bridgelike arms are approached by the wide proces sional stairs dictated by the slope of the site.

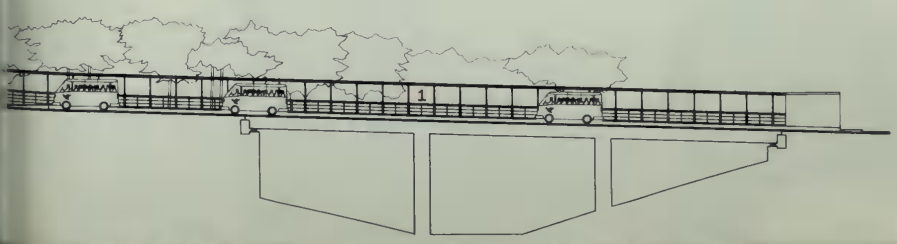
Pragmatism determined much of the form, not only for engi neering reasons, but also for sociological and climatic ones. The struc ture was developed as a series of independent elements by engineers Ov Arup & Partners, who brought McAslan into the project. In an earth quake zone a vast, monolithic structure is simply not an option. Eac piece is low—three stories—and massively framed in concrete. All th

1. *Access bridge*
2. *Entrance plaza*
3. *Fabric roof of internal street*
4. *Reception area*
5. *Stair tower*
6. *Processional stai*
7. *Restroom pod*



LONGITUDINAL SECTION





The main entrance ramp (opposite) is marked by a tensile fabric canopy; inside, a grid of streets is punctuated by five bold circulation towers that add a Piranesian dynamic to the complex. The streets' canopies, glazing, and awnings (above) help maintain an energy-efficient climate.





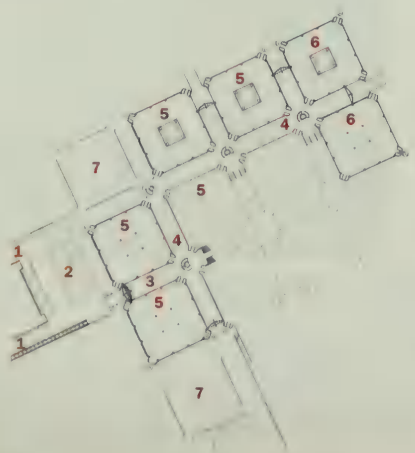
1. *Bridge over ravine to car park*
2. *Forecourt*
3. *Entrance*
4. *Internal street*
5. *Offices*
6. *Phase two*
7. *Courtyard*



FOURTH LEVEL



SECOND LEVEL



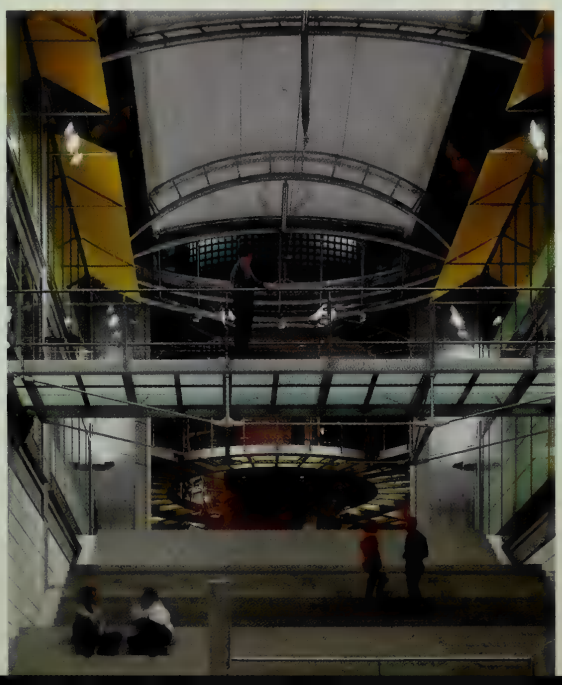
ENTRANCE LEVEL

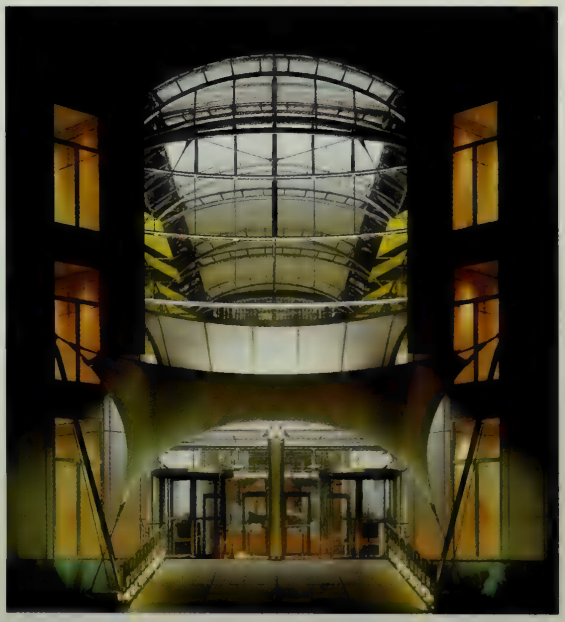
0 100 FT.
30 M.

N

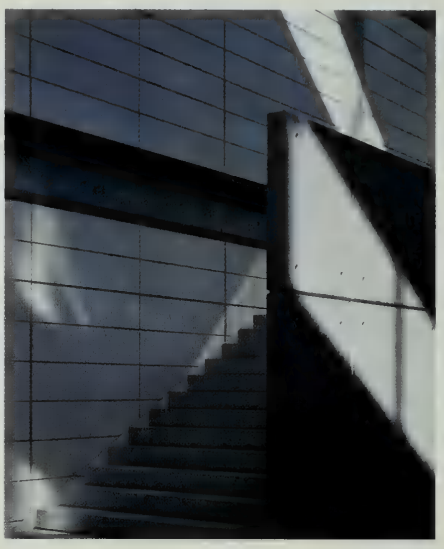
The naturally cooled and convection-heated interior streets are landscaped (right). Concrete cores containing glass elevators are wrapped by precast stairs with glass and steel landings. The cores are open in some places and encased in glass block in others (opposite). One of three grand stairways (below left) follows the contour of the site to the next node. Glazed end walls (entrance, below right) and an aluminum tubular frame diminish the sense of mass.





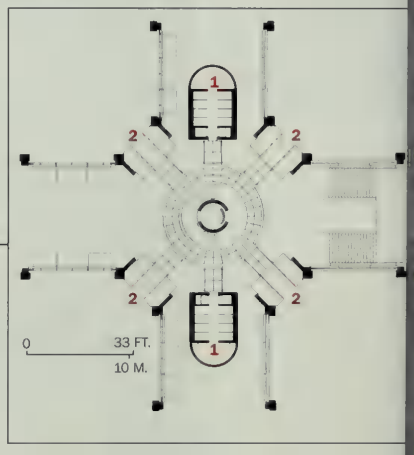






1. *Restroom pod*
2. *Entrance to office bloc*

Limestone panels clad the walls of the stairs (above) and retaining walls (left). The curved reception desk (opposite) marks the entry.



infill panels are, in contrast, of lightweight aluminum, translucent glass, or in some cases limestone cladding.

The air-conditioned office floors are straightforward enough, with high-quality furniture and partitioning. But most social interaction takes place in the circulation areas outside, which act as climatic buffers to reduce the overall energy load. Ventilation in the streets is achieved through a stack effect, in which the service towers draw hot air out the top of the building. Retractable fabric awnings provide additional shading from the sun. On the exterior facades, fixed solar louvers perform the same function, acting as delicate foils to the unadorned concrete-and-glass facades.

Each street is planted differently to help orient the complex's occupants. Here and outside the building, the landscaping was designed by Peter Walker, a Berkeley-based landscape architect. Walker has begun gradually to reforest the denuded valley below the site, which is very visible from the double bridge leading across a ravine to the new complex. Landscaped courtyards at the periphery—open squares on the grid—allow for future expansion. In fact, two extra pavilions were commissioned virtually as the first eight were completed. This desire for flexibility in growth is one reason the exterior facades have been kept so understated: they may not be outside for long.

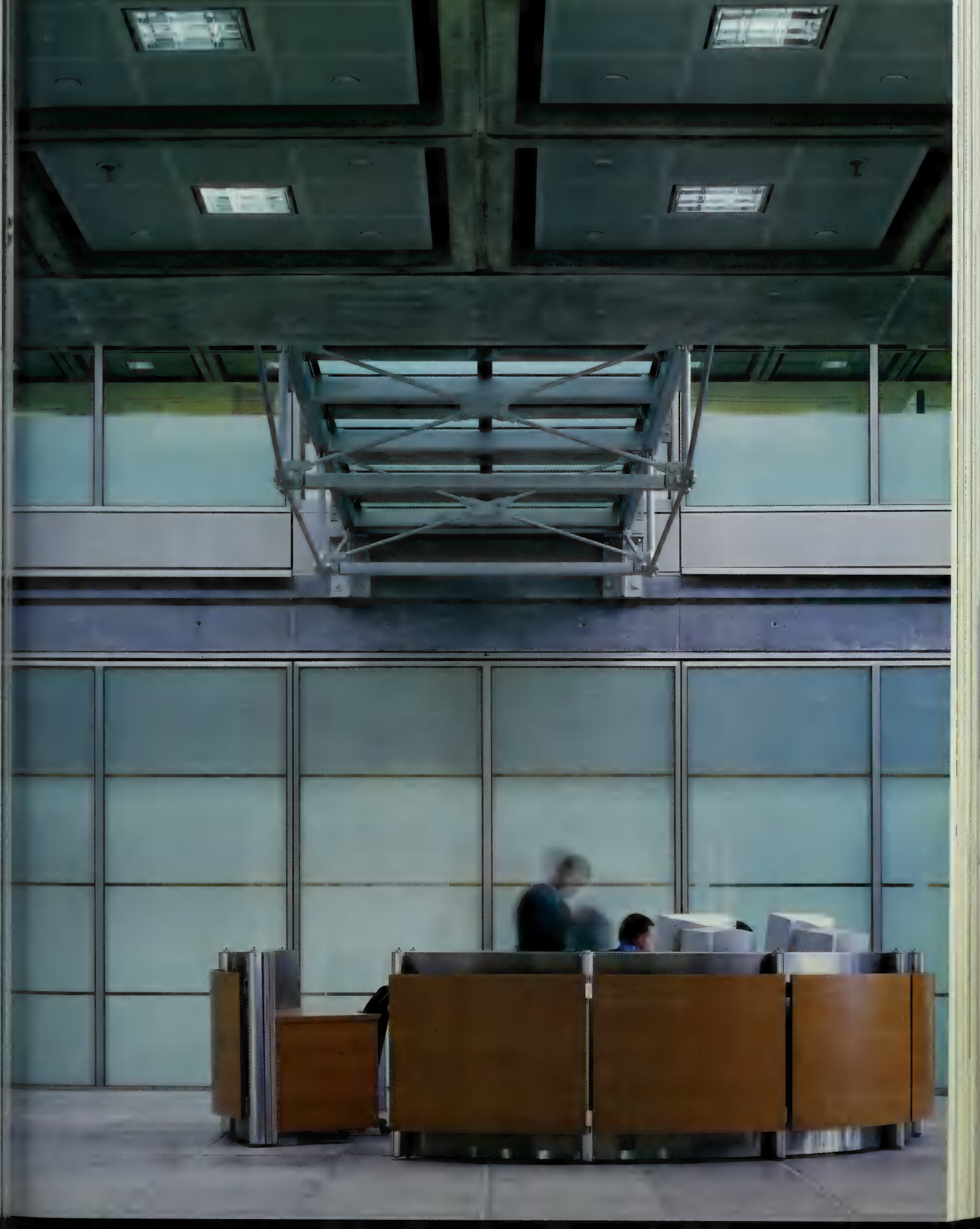
THE DESIGN DOES NOT PILFER LOCAL MOTIFS OR ASSUME A FAKE VERNACULAR.

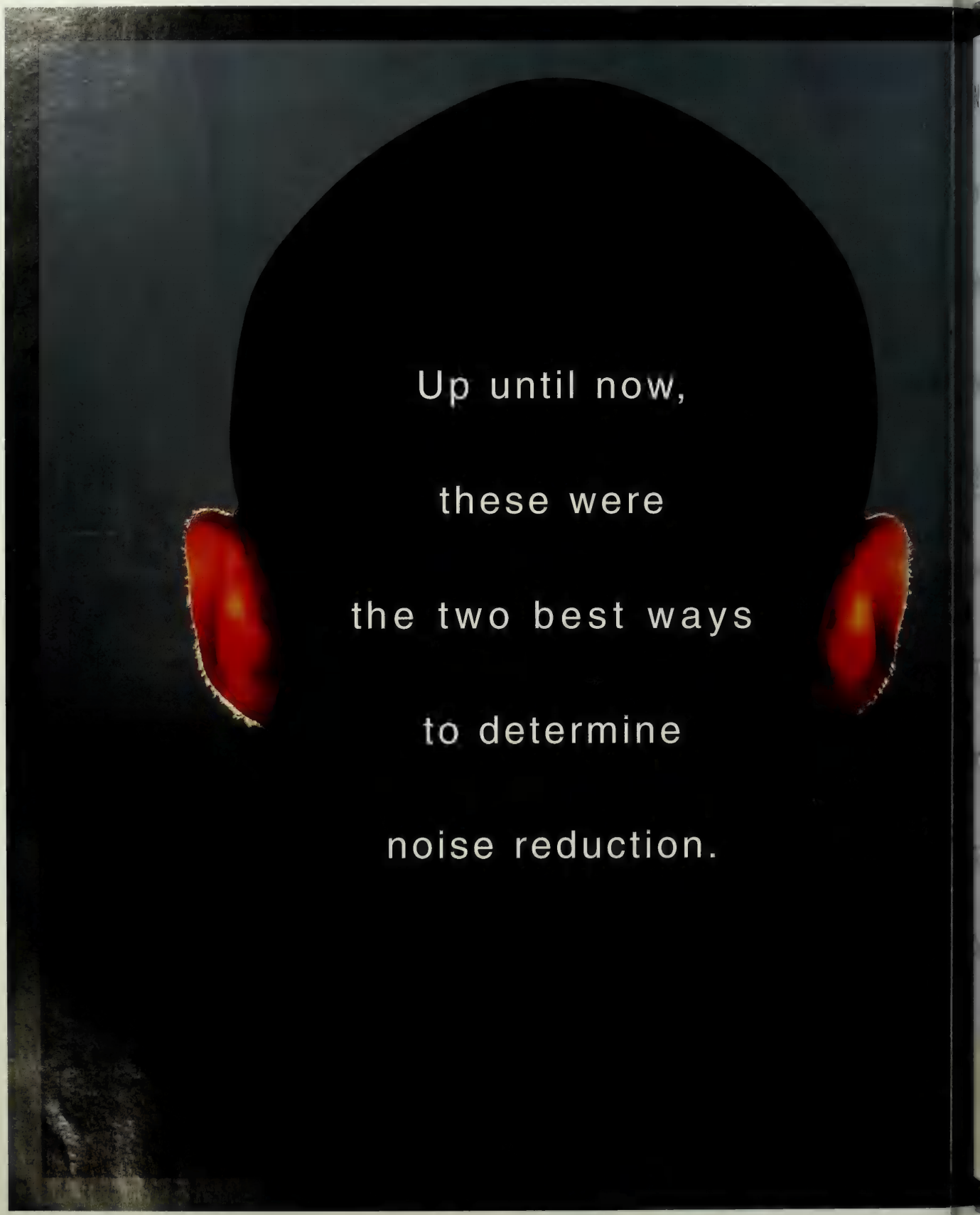
In this part of Asia, one must work with the available technology. Many an architect used to the more sophisticated building practices of northern Europe, North America, and the Far East encounters difficulties in adapting to the Mediterranean regions. Here, however, exploiting the ubiquitous Olive Belt technology of poured concrete for the basic structure was appropriate in terms of both earthquake-conscious engineering and the nature of the site. The irregular grid of buildings and their clearly distinguishable massive frames appear carved out of the topography. The complex carries echoes of hilltop settlements throughout history whether military, domestic, or religious in purpose. A little raw at first, a all such places are, it is developing as an acropolis, melding with the land scape while bleaching gradually in the sun.

Perhaps the greatest compliment Yapi Kredi pays to its hos country, however, is not to be condescending. The design does not pilfe local motifs or assume a fake vernacular or a needless grandiosity. Instead it honors, with modesty, certain traditional responses to conditions i that part of the world that the modern architect would be wise to learn The house of the family of Yapi Kredi is a harmonious one. ■

Project credits (continued)
Associate Architect: *Metex—Sinan Kafadar, Aysegul Kapisiz, Cavit Sarloglu*
Engineering design, project management: *Ove Arup & Partners—Simon Barden, Fred Brenchley, Simon Brimble, Philip Ellis, Ian Fowler, Anne Sophie Grandguillaume, John Haddon, John Hopkinson, Martin Long, Tony Marriot, Simon Murray, Alan Ogden, Colin Pierce, Jim Read, Rob Saunders, Richard Terry, Bob Venning, Winston Riby William Elliot Wishlade; and Arup MMLS*
Engineers: *Arup Facade Engineering (facades); Turgut Tufecki (electrical)*
Landscape consultant: *Peter Walker and Partners*

Sources
Fabric roof membrane: *Koch-Hightex*
Street roof structure: *Temsan*
Bursa limestone cladding: *Interstone*
Aluminum cladding: *Cuhadaroglu*




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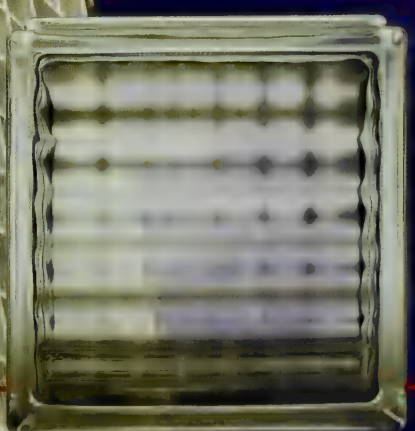


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North Hollywood Police Station
North Hollywood, California.
Firm: Meyer & Allen Associates.
Architect: Clifton Allen



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CIRCLE 131 ON INQUIRY CARD

COURTHOUSE BUILDINGS

Designing Justice for All

COMPUTER TECHNOLOGY, SECURITY, AND ACCESSIBILITY HAVE BECOME THE DRIVING FACTORS IN THE DESIGN OF THE NEW COURTHOUSES THAT ARE POPPING UP EVERYWHERE.

by Todd S. Phillips, AIA



1

Boston

Pei Cobb Freed & Partners' new courthouse tries to visually unite an old warehouse district with Boston's new skyscrapers.



2

Queens, New York

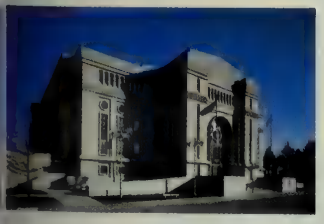
Challenged by a tight site and a tall order, Perkins Eastman Architects created a new civil courthouse that is user-friendly.



3

Santa Ana, California

The second tallest building in Orange County, this federal courthouse was designed by Gruen Associates/Zimmer Gunsul Frasca Partnership.



4

Concord, New Hampshire

This formal, traditional courthouse includes eight courtrooms and is built with a palette of stone, stainless steel, and cherry wood.



5

La Crosse, Wisconsin

The La Crosse County Law Enforcement Center incorporates offices, a jail, and five courtrooms, all located at the edge of a historic city.

Key words in the lexicon of courthouse design include "solemnity," "dignity," "integrity," "orderliness," and "civic presence." These words appear in the current version of the United States Courts Design Guide, a book produced by the security and facilities committee of the Judicial Conference of the United States. This august group, made up of current federal judges, wrote this set of guidelines (preceded by three earlier editions) to apply to federal courts facilities. But the same words may be used for courthouses at the state and local level.

No other secular building type is so richly laden with symbolism, or so burdened with the stewardship of constitutional principles. Lacking the power of the purse or the sword, the courts' authority rests on a moral plane. So the courts' reason for being—to provide places where justice is administered and affirmed—must be architecturally legible. But how do architects and designers translate abstract words and their underlying meaning into buildings? The following Building Types Study proves that there is no ready formula, no easy answer to this question.

Courthouse design must consciously evoke the transcendent values of this country's rich, culturally diverse, and increasingly complex society. "Courthouses should enable all citizens to see themselves reflected in a human attempt to bring justice to everyone, whatever their cultural background," says Conrad L. Rushing, a superior court judge in Santa Clara County, California.

Rushing works in a part of the country where there are citizens from an unusually wide range of ethnic backgrounds; approximately 224 different languages are spoken in Santa Clara County. He fears that good courthouse design has been lost, replaced by overscaled, multi-occupant complexes that intimidate people, particularly those who are new to the United States and who are not conversant or familiar with the court system."Courthouse design," he says, "must stay rooted in what it means to dispense justice thoughtfully, in a comprehensible space, one person at a time." That, after all, is the cornerstone of the American justice system.

Todd S. Phillips, AIA, formerly staff director of the Committee on Architecture for Justice, is now the director of the Center for Advanced Technology Facilities Design for the AIA.

A New Deal for courthouses

In 1991, the federal government launched a major building initiative to create new federal courthouses. The program has been compared to the federal construction efforts of Roosevelt's New Deal. "Approximately half of the nation's 370 federal courthouses were slated for replacement over a 10- to 15-year period at a total cost of between $7 billion and $8 billion," says P. Gerald Thacker, formerly with the United Stated Administrative Office of the Courts (USAOC), a group that administers and supports the federal courts, from developing space standards to training programs. To date, 54 projects have been fully funded, including the United States Courthouse in Boston and the Ronald Reagan Federal Building and Courthouse in Santa Ana, California. Another 20 projects are in the works, including Richard Meier & Partners' Federal Courthouse in Islip, New York, scheduled for completion late this fall, with an additional 70 courthouses expected to be built after 2004.

The impetus behind the program, according to Supreme Court Justice William H. Rehnquist, was the recognition that "both the federal and state court systems were faced with a litigation explosion" that has placed enormous stress on the existing facilities. The scale of this commitment in dollars and time, and an awareness that these new buildings would have a tremendous impact on the towns and cities in which they were located, carried with them the need to create a high level of architectural quality.

"Our design sensibilities seem to have gone off base for a short period, primarily from the 1950s into the early 1970s," says Edward A. Feiner, FAIA, chief architect for the General Services Administration (GSA). "But one of our objectives is to try to recapture tradition." Judge Rushing agrees: "Some cultural sensitivity is needed now to mend the vandalism committed by the International Style court buildings of a generation ago. Their effect was to wipe away the very symbols of justice."

An important step in this process was the creation in 1993 of the GSA's Design Excellence program, which made the quality of an architecture firm's design ability the primary determinant in the selection process. Previously, the choice of architect was predicated on the mountain of forms and qualification statements submitted by the firm. As a result, only large firms with document-processing departments could qualify; design ability and experience were secondary.

At the same time, the AIA's Committee on Architecture for Justice, a long-established professional interest group for those who specialize in justice facilities, launched the International Courthouse Design Conference series, held in 1992, 1995, and 1998. These gatherings brought together courts designers, judges, and courts administrators in the spirit of understanding one another's roles and missions.

Initial design discussions centered around not only the appearance of the courthouse but also the geometry and image of the courtroom itself. For example, what is the best way to configure the basic elements within the courtroom—the bench, jury box, the box in which testimony is delivered, and the spectator's seating area? Are there advantages to a diagonally positioned judge's bench? Is the symbolic power of a centrally positioned bench better? How will courtroom design reckon with the implications of the Americans with Disabilities Act (ADA)? Will it entail ramps or lifts at the witness and jury box? Real-time transcription for the hearing-impaired?

By 1995, these concerns were addressed in a revised edition of the Courts Design Guide, this version enriched by Federal District Judge Douglas Woodlock, who collaborated closely with Pei Cobb Freed &

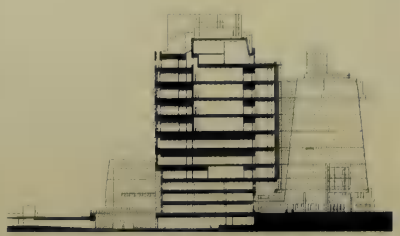


The Regional Justice Center in Las Vegas, designed by Tate & Snyder in association with HDR Architecture, will include municipal, district, and supreme courts, district attorney offices, and a marriage-license bureau.



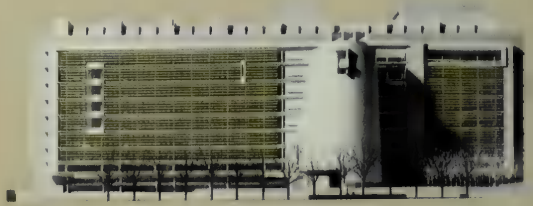
PROTOTYPICAL COURTROOM

The 11-story Federal Courthouse in Islip, New York, designed by Richard Meier & Partners, will contain 23 courtrooms, with space for an additional 16.



DISTRICT COURT SECTION

0 25 FT.
7.5 M.



Partners on the design of the United States Courthouse in Boston. In this version of the guidelines, Woodlock reminds architects that they should capture the very best of the culture and legal history of the community and express it in the building, rather than "hide the courtroom function—however elegantly you do it—inside a box." Doing so underscores this country's constitutional mission to deliver equal justice under law. "This is a moment in the country in which we can either devastate our public realm or we can enrich it," he adds.

Designing fortresses

Then, in April 1995, the Alfred P. Murrah Federal Office Building in Oklahoma City was bombed, and the implications and meaning of building security suddenly changed in all types of buildings (see RECORD, March 1998, page 145). In courthouses, security instantly became a priority that was to reach far beyond metal detectors and surveillance cameras alone. Architects, particularly those involved in federal projects, began to realize that designing for building security means anticipating targets, potential threats, and means of attack, and recognizing that everything from site selection to construction materials may be crucial to saving lives and preventing damage.

Within a month of the Oklahoma City blast, the Justice Department initiated a formal assessment of the vulnerability of federal facilities. Personal and building security was always something of a priority in courthouses, much of it focused on spontaneous acts of violence by litigants in corridors and courtrooms. But the 800-pound explosive device parked at the curbside in Oklahoma City underscored the reality of politically motivated terrorism.

It also made people aware that security threats and attacks come from many sources. While ballistic missiles, vehicle bombs, chemical and biological threats, and other acts of violence continue to be vital concerns, "cyber-terrorism" and preserving the integrity of electronics-based information systems will grow in importance as courts become more dependent on digital systems used for displaying evidence, conducting research, transmitting and recording testimony, and other applications, says Frank Dozier, head of computer security for the USAOC.

Ironically, the quest for ways to protect a facility from explosives and other potential threats intensified at the very moment that accessibility—one in five Americans has a physical disability of some kind—demanded greater openness. Reconciling these two competing mandates, security and accessibility, is an acute problem for designers who seek to design anything other than a friendly fortress. Bollards, detection devices, heavy doors, locked entries, and other security measures all make navigating a building more of a problem for those who are already limited by physical impairments.

"We try to strike a balance to make sure that people approaching the courthouse have the feeling that the judicial process taking place inside is open and fair," says David Hobstetter, AIA, a principal at Kaplan McLaughlin Diaz Architects in San Francisco, designers of the Klamath County Courthouse in Klamath Falls, Oregon. The problems involved in creating secure facilities can be turned into an advantage. "One of the key security strategies—deep setbacks from the perimeter of the property or the road—can sometimes be turned into a powerful tool for creating plaza and park spaces for the public. These help to restore the courthouse as the inviting centerpiece of a large open site."

Technology on trial

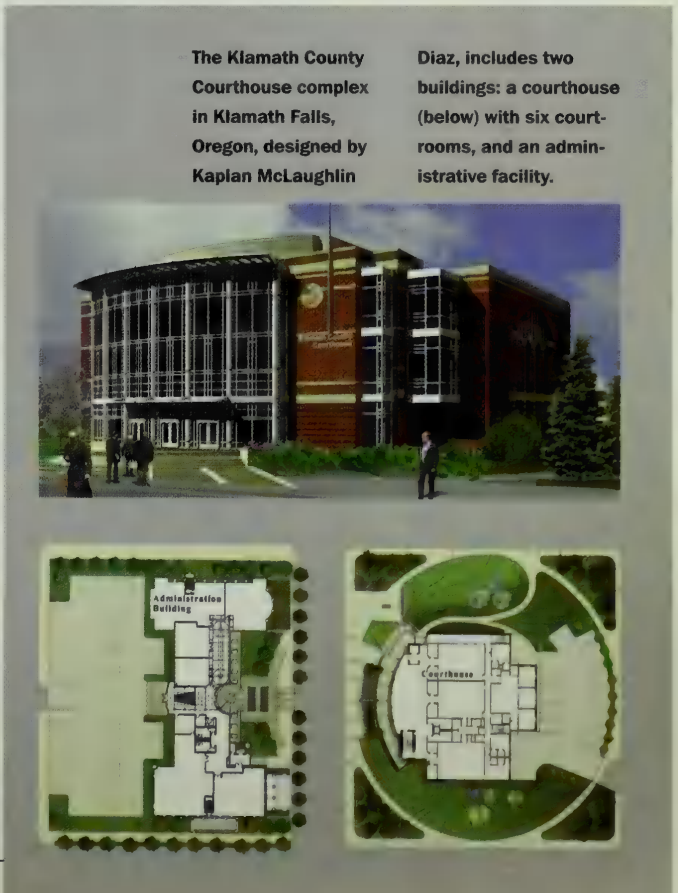
The trial of O. J. Simpson at the Los Angeles County Superior Court in 1995 illustrated what many courts designers were already discovering: trial support technology was becoming the most important new dynamic in courts design. Courtrooms were becoming, in the words of one judge, "electronically enhanced crucibles."

A guide to electronics in courtroom design, issued that year by the federal judiciary, identified the four main areas most affected by technology: presentation of testimony via audiovisual conferencing; presentation of evidence using electronic imaging and retrieval, computer animation and simulation, and annotation and highlighting of video evidence; recording of testimony with real-time court reporting and in-court transcript annotation; and access to ancillary information, including an increased reliance by lawyers and judges on computer-assisted legal research and court databases.

TECHNOLOGY MUST BE AS TRANSPARENT AS POSSIBLE; COURTROOMS MUST IN NO WAY RESEMBLE VIDEO ARCADES WITH PANELING.

Architects were suddenly confronted with a tangled mix of technical problems. It was as if courts design had been ambushed by something unanticipated the decade before. Familiar courtroom design issues, such as optimal sightlines, acquired new meaning when, for example, large-screen evidence-display systems were introduced. A few of the new questions being raised: "What's the optimal layout of technology on the judge's bench top?" and "How can jury-box millwork accommodate chunky monitors?"

Judges at the AIA's second International Courthouse Design Conference in 1995 made it clear that these new *(continued on page 164)*



The Klamath County Courthouse complex in Klamath Falls, Oregon, designed by Kaplan McLaughlin Diaz, includes two buildings: a courthouse (below) with six courtrooms, and an administrative facility.

1 United States Courthouse Boston

A SOLEMN BRICK FRONT FACADE GIVES WAY TO A SWEEPING CURVE OF GLASS AND A PANORAMIC VIEW OF THE BOSTON HARBOR.

by David Dillon

Project: *United States Courthouse, Boston*
Owner: *General Services Administration*
Design Architect: *Pei Cobb Freed & Partners Architects, LLP—Henry N. Cobb, FAIA, partner-in-charge; Michael D. Flynn, AIA, George H. Miller, AIA, partners; Ian Bader, AIA, Dennis Egan, associate partners; Deborah Campbell, AIA, Richard Cutter, John Neary, Richard Smith, Harry Toung, Bruce White, AIA, senior associates; Andrzej Morawski, AIA, Gianni Neri, Eric Schiller, AIA, Robin Taff, AIA, Jacqueline Thompson, AIA, Deborah Young, AIA, associates*
Associate Architect: *Jung/Brannen Associates, Inc.—Yu Sing Jung, FAIA, principal-in-charge; Axel Kaufmann, AIA, project manager; Norman Adams, AIA, Crawley Cooper, AIA, principals; Joseph Gloski, AIA, Mariana Vaida, AIA, Evan Layne, AIA, Michael Breau, AIA, Joslin Stewart, AIA*
Engineers: *LeMessurier Consultants (structural); Cosentini Associates (mechanical, electrical)*
Consultants: *Gruzen Samton—Jordan Gruzen, FAIA, Scott Keller, AIA, partners; Michael Kazen, AIA, principal (courts); Parsons Brinckerhoff Construction Services (construction quality); Olin Partnership, Carol R. Johnson Associates (landscape); Ellsworth Kelly (project artist)*
General Contractor: *Clark Construction Group, Inc.*

Cost: *$163 million*
Size: *$760,000 square feet*

The United States Courthouse in Boston is simultaneously formal and welcoming, dense and transparent, detached and connected—a three-dimensional representation of the law itself. At a time when many buildings are inspired only by an amortization schedule, this one derives from powerful ideas about citizenship and public service. Although not all of these ideas are fully or persuasively expressed, the courthouse presents a forceful challenge to the conventional view of the judicial system as authoritarian, abstract, and alienating.

Designed by Henry N. Cobb, FAIA, of Pei Cobb Freed & Partners, the massive L-shaped courthouse stands at the tip of Boston's historic Fan Pier, where railroad tracks once literally "fanned out" to meet arriving cargo ships. The choice of such a prominent site angered some Bostonians, who wanted it reserved for housing or perhaps a waterfront park. A century ago such a debate would never have occurred; it was understood that the most important public buildings belonged on the most important sites.

Cobb, with extraordinary support from United States District Judge Douglas Woodlock and Associate Supreme Court Justice Stephen Breyer, set out to design a building that, in Judge Woodlock's words, "would teach people about the courts and the law, and encourage them to engage in meaningful civic life once again." It would be a grand public building in the tradition of Sullivan, Richardson, and McKim, Mead and White. And it would provide an anchor for waterfront development. "It was our intention to make a building that shapes space instead of merely occupying it," Cobb says.

The local and the universal

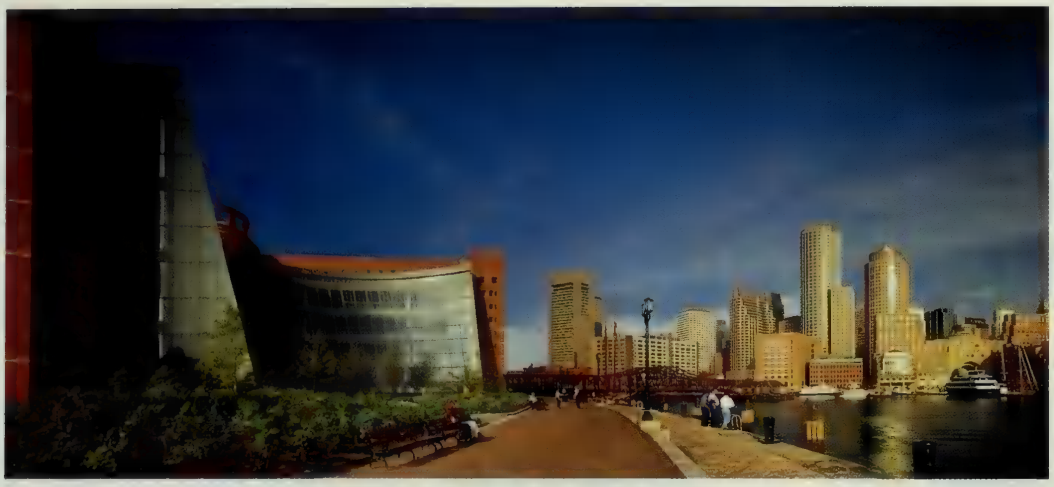
The courthouse has an exterior of red brick and Deer Isle granite, venerable New England materials that appear on hundreds of Boston buildings. Yet on the harbor side, the local vernacular is abandoned for an intricate steel-and-glass window wall shaped like an off-center ice cream cone. At 372 feet in length and 88 feet in height, the conoid window frames spectacular views of the harbor and the skyline. This union of the local and the universal epitomizes the architects' goal of creating a building that is of its place yet slightly ahead of its time.

In composing the facade, the architects abstracted and synthesized details from nearby warehouses—everything from the brick coursing to the deep shadow lines, which are expressed by stacks of bay windows. The main entrance is a collage of round arches and flat planes leading to a dramatic nine-story rotunda in the center of the building. The Great Hall, defined by the sweeping window, symbolizes



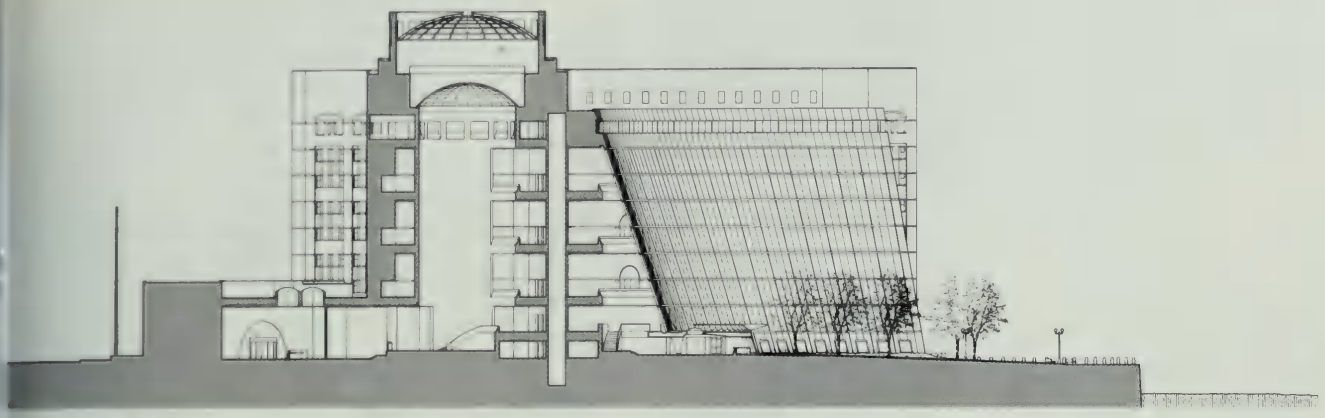


The front entrance's sobriety (opposite top) gives way to the curved back of the courthouse (below), which offers grand views of the Boston harbor. A promenade (right) links the building to the surrounding neighborhood, which is mostly warehouses. The nine-story building includes 27 courtrooms, judges' chambers, offices, and a child-care center.









SECTION

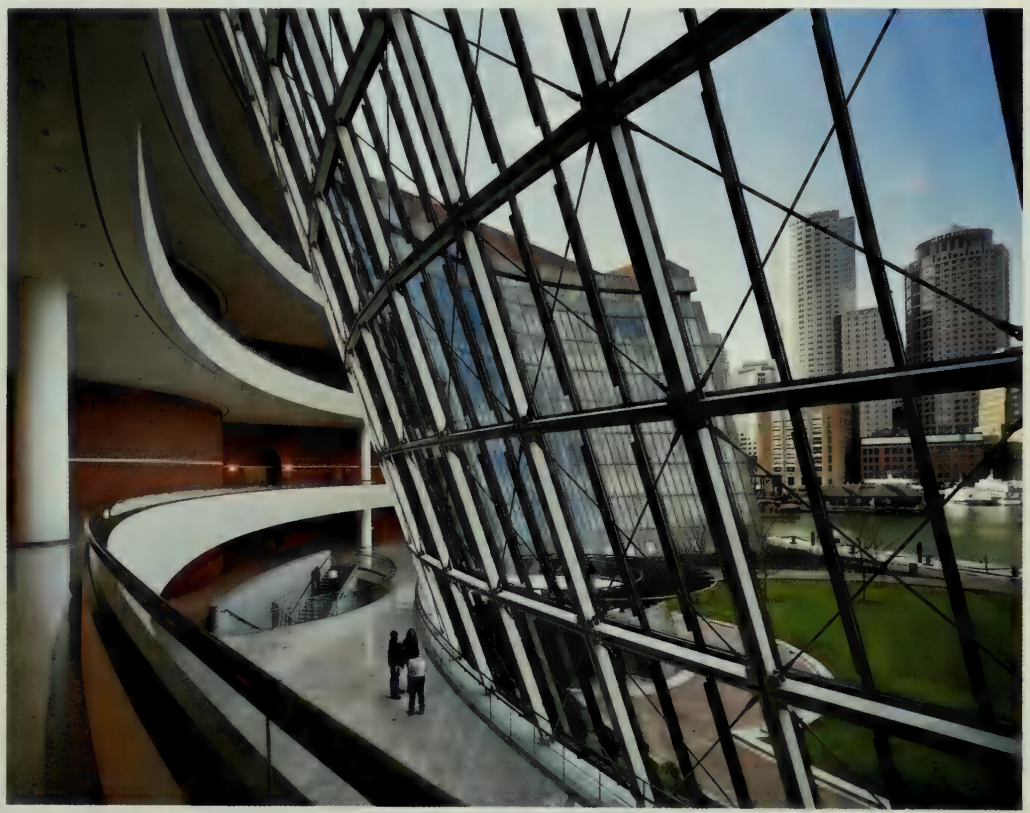
the openness and accessibility that distinguish this courthouse from its contemporaries. The window connects court and city, placing the law at the center of the public realm. Even the jury rooms have views.

Where judges sit

Twenty-seven courtrooms are placed along three semicircular galleries, with two floors of offices for every floor of courts. This arrangement allowed the courtrooms to be large but made the offices and judges' chambers modest. To compensate, the judges' chambers were located at the ends of corridors, providing them with views of the harbor and the skyline.

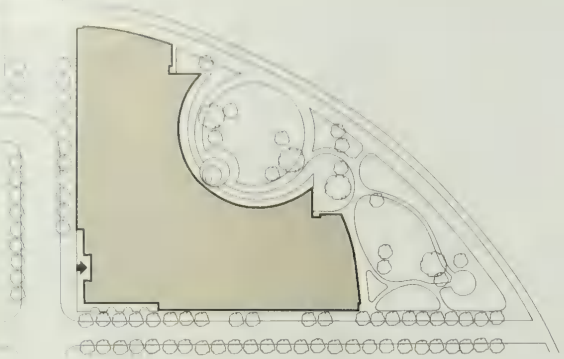
Each courtroom is identified by a small beehive entrance that Cobb affectionately borrowed from a one-room courthouse in Wiscasset, Maine. The simple brick dome of the Maine courthouse gives an otherwise ordinary building extraordinary dignity; in Boston the effect is somewhat diminished by 27 repetitions, but it is still compelling.

The courtrooms are spacious and comfortable without seeming like throne rooms. Judge, jury, defendants, and spectators are all framed by identical round arches, signifying that in a court of law no one person is more important than another. The unadorned deacon's benches and the simple stenciling on the walls, emblems of New





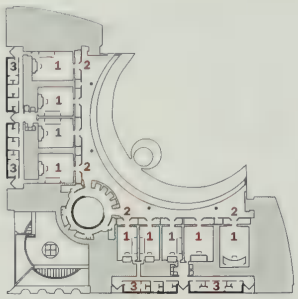
Curved galleries maximize views of the city and the harbor (above), allowing spectators, judges, jurors, and defendants to see the building's place within the urban realm. While security was an important consideration during the design process, the courthouse is surprisingly open and accessible to the public—a model for the judicial processes that take place inside. An arcade (left) and landscaped plazas (opposite) relate the building to the site and connect it to the neighborhood.



SITE PLAN

N

0 100 FT.
30 M.



7TH FLOOR

1. *Courtroom*
2. *Judge's chambers*
3. *Jury deliberation and lounge area*



England restraint and rectitude, underscore this point.

A restaurant and café occupy a portion of the Great Hall, facing a linear waterfront park. Designed by the Olin Partnership, with Carol R. Johnson Associates, the park is complete with a promenade and a boat dock. Exhibition spaces and a day-care center were also included as part of the courthouse.

The extent of public access to the courthouse is particularly remarkable in the aftermath of the Oklahoma City bombing, which turned many federal buildings, including the White House, into bunkers. According to Judge Woodlock, the bombing caused minor operational changes to the Boston courthouse, but none that affected the architecture. "The jury system is one of the last bastions of direct democracy in America. If you don't have a building that expresses those values, you subvert one of its primary roles," he says.

In another break with convention, the courthouse is devoid of traditional iconography, except for carved inscriptions on the exterior walls. Instead of blindfolded Justitia with her scales, or a mural of King Solomon settling a child-custody suit with his sword, there are 21 bold monochromatic paintings by American minimalist artist Ellsworth Kelly. Nine are suspended from the walls of the rotunda; the others are located at the ends of the galleries, where they talk to one another across a crystalline space. In their clarity, directness, and restraint, the Kelly paintings serve as emblems of justice and the law.

Controversy abounds

The new Boston courthouse has raised expectations as well as hackles. Its design is intended to inspire a new generation of courthouses that will renew enthusiasm for public architecture, and the City of Boston hopes it will spark the redevelopment of a derelict stretch of waterfront. In early drawings the courthouse is the centerpiece of a new low-rise residential and commercial district. Regardless of what eventually develops along the Fan Pier, the courthouse will be its gateway and focal point.

By any standard, the Boston courthouse, with 760,000 square feet built at a cost of $163 million, is a massive and expensive building. Critics argue that such courthouses are anachronisms at a time when many believe serious crime will diminish and disputes will increasingly be settled by arbitration.

The counterargument heard frequently from judges is that the administration of justice ultimately takes place in the courtroom, and that the mood, setting, and symbolism of that space are essential to people feeling that they have been fairly represented.

The new Boston courthouse belongs to the older order of didactic and hortatory buildings that convey basic lessons about citizenship and public life. The building is emblematic of the importance and weightiness of the process of administering justice. ■

Sources

Steel frame: *Bethlehem (fabricated by Cives)*
Deck: *BORIS*
Curtain walls: *Flour City*
Conoid wall structure: *Advanced Structures, Inc.*
Glazing: *Viracon*
Skylights: *Architectural Skylight Company*
Hollow metal doors: *Bilt Rite*
Wood doors: *Benly & Buell*
Bronze pulls: *Forms + Surfaces*
Window blinds: *Hunter Douglass*

ne layers of curved alleries are visible om the courthouse's ack entrance (oppo- ite). The beehived brick ntry to each of the ourtrooms (right) pays ibute to a one-room ourthouse in rural laine. The understated, ymmetrical court- rooms (below), with their stenciled decoration and simple wooden benches, are characteristic of New England. Judge, jury, and defendant sit beneath equally sized arches, a symbolic gesture showing that all are equal under the law.





2 Queens Civil Courthouse Queens, New York

A USER-FRIENDLY COURTHOUSE WITH A SIMPLE, INFORMATIVE PLAN AND PLENTY OF DAYLIGHT LENDS CLARITY TO THE JUDICIAL PROCESS.

by Virginia Kent Dorris

Project: *Queens Civil Courthouse, Queens, New York*
Architect: *Perkins Eastman Architects—Mary-Jean Eastman, FAIA, Jonathan N. Stark, AIA, principals-in-charge; L. Bradford Perkins, FAIA; Douglas P. King, AIA; Meena G. Singh, project architect; Diana M. Sung, AIA, Ty Kaul, AIA, Kate Hanenberg, Esther Slubski, Herb Dizon, Rebecca Doyle, Reter Hughes, Polly D. Stone, Celia Baruchin, Lashford Lowe, Alexander Vajda, Lucian Andrei, Cono Dezio, Hideaki Ariizumi, Ed Weinberg, Carlos Panfilo, Kiyokazo Sho, Jacob Buxbaum, Gary Turton, Paul Sheehan, Benny Chan, Carlos Concepcion*
Consulting Architect: *Edward I. Mills, FAIA*
Engineers: *Cosentini Associates (mechanical/electrical); Cantor Seinuk Group Inc. (structural); Environmental Design Associates (landscape); Ann Kale Associates (lighting); Cerami and Associates, Inc. (acoustical)*
Consultants: *URS/Greiner Consultants (construction manager); Eric Hansell (exterior consultant); DTM Consulting (elevator); Electronic Systems Associates (security); Glezen Fisher (hardware); Smith Meeker Engineering (audiovisual); Lebowitz/Gould Design Inc. (signage); Ed Carpenter (atrium artist); Anna Valentina Murch (courtyard artist)*
General Contractor: *Petracca and Sons*

Cost: *$61.5 million*
Size: *315,000 square feet*

For many people, the call to jury duty or involvement in a small civil action is their first experience with the court system, particularly in this part of New York City, where a substantial percentage of residents are recent immigrants. For this reason, creating a building that is easy to find one's way around in was the paramount objective of Perkins Eastman Architects in the design of the Queens Civil Courthouse in Queens, New York.

"We wanted to make finding where to go as simple and direct as possible," says Mary-Jean Eastman, FAIA. "The building should be inviting, not intimidating. Many people who use the building are new to the country and do not speak English fluently."

To create a user-friendly building, the architects designed a clear, informative plan. They selected two forms to contain the building's distinct functions: a four-story cube for jury selection and waiting facilities, and a five-story rectangular wing for courtrooms, court clerks' offices, and judges' chambers.

The cube and the rectangle are linked by a glass-walled atrium lobby that provides a transparent and immediately decipherable entrance for the building. The entire front of the jury assembly room is also built of glass and overlooks a public plaza, giving the jurors a sense of connection with the outside community. Maximizing daylight was a priority, says Jonathan Stark, AIA, a principal with Perkins Eastman. "We wanted the jurors' space to be as comfortable as possible," he says.

Virginia Kent Dorris, based in Brooklyn, New York, writes about architecture and architectural technology.

Time to build

The new building, completed in the fall of 1997, occupies a difficult spot. Directly to the south is the imposing, eight-story limestone Civil Supreme Court, built during the 1930s. To the west, directly in front of the Queens courthouse, are a series of small, low-rise commercial structures. The northeast corner of the site is occupied by a six-story brick apartment building, with a row of three-story, single-family houses directly behind it.

Relating the design of the courthouse to its surroundings was a concern from the start. "We knew that zoning rules, as well as the needs of the neighbors, would limit the height of the new building," Eastman recalls. "We also knew we didn't want to compete with the massiveness of the imposing Supreme Court building." To ensure that the courthouse paid respect

The atrium entry provides clear direction to visitors, many of whom are new to the court process.





The Queens courthouse was built in response to a master plan that assessed the existing facilities and needs for courtroom space in New York City. The courthouse is wedged in among apartment buildings, houses, low-rise retail businesses, and a 1930s Civil Supreme Court. To reconcile the various setbacks and harmonize with the many different types of neighboring buildings, the architects used open spaces (opposite) and sympathetic materials, including limestone and granite (left). They also angled the building's elements to blend with the surroundings (below).







THIRD FLOOR



SECOND FLOOR



FIRST FLOOR

0 50 FT. 12 M. N

Daylight and clean surfaces (above) make this courthouse less intimidating than many of the more classical courthouse buildings.

1. *Lobby*
2. *Jury area*
3. *Court clerk's office*
4. *Landlord/tenant court*
5. *Courtroom*
6. *Small claims office*
7. *Judge's area*
8. *Judgment and appeals*





A sculpture garden (far left) at the back of the building buffers it from nearby apartments and provides pleasant views. Courtrooms (left) are simple and clean, like the rest of the building. Cork floors absorb sound and keep the courtrooms quiet.

o its neighbors, the architects chose small, low building forms and arranged them to complement the existing pattern of nearby buildings.

The project was part of a 1989 master plan for courthouse construction and rehabilitation in the City of New York mandated by the state, which was trying to assess the existing stock of court facilities and prepare for future construction projects.

The Queens site had been slated for courthouse construction long before the master plan. An earlier design for the site, created by another firm, was scuttled during New York City's 1973 fiscal crisis. That design could not be revived for current construction because it did not meet program and accessibility requirements, says Prakash Yerawadekar, chief architect for the court system of the State of New York. The new courthouse was constructed and will be maintained by the City of New York.

Rather than consulting directly with the judges—the facility's actual users—Perkins Eastman worked with Yerawadekar and the architects in his office during design development. Because the judges serve limited terms in office and their schedules are often full, their consistent participation in the design process would have been very difficult to manage, according to the architects.

Clear components

To integrate the courthouse with its diverse neighbors—including houses, apartment buildings, and low-rise retail businesses—Perkins Eastman aligned the rectangular block of courtrooms, located at the north end of the site, with the adjacent side street. The jury portion of the building was aligned with the Supreme Court building. The resulting setback allowed the architects to extend the public plaza in front of the Supreme Court across to the entrance of the new courthouse.

The jury and courtroom blocks intersect at the south edge of the building lobby in a glass-enclosed, wedge-shaped atrium, which contains a large corridor. Providing public access to courtrooms and offices, this multistory corridor doubles as a public waiting area.

The building's limestone and granite exterior visually links it to the neighborhood and the Supreme Court building. Interior public spaces include terrazzo floors and stone walls. The courtrooms have traditional wood paneling and cork floors, which are especially quiet.

The building contains 20 courtrooms, grouped together on four floors in one wing and served by a central public elevator bank. One of the courtrooms is a landlord/tenant court, which doubles as the small claims court during nighttime proceedings. The fifth floor is devoted exclusively to the judges' chambers, conference rooms, and a law library. Small robing rooms and jury deliberation rooms are still located behind individual courtrooms to accommodate private meetings.

A departure from the traditional practice of locating chambers directly behind individual courtrooms, this arrangement allows for a more efficient separation of public and private functions and a more economical building footprint. Similar arrangements of public and private spaces are now becoming common in the design of large state courthouses, according to Yerawadekar.

The jury facilities, which are used to impanel jurors for the civil court as well as the Supreme Court, includes a 230-seat auditorium area surrounded by a 4,000-square-foot lounge.

Designing for security

In addition to designing a building that was easy to navigate, the architects needed to make the courthouse secure. Though not as important an issue in a civil court building as it is in a federal courthouse, security was a major consideration in the Queens building.

During the design phase, for example, Perkins Eastman removed a sculptural, cylindrical stairway and a reception area from the building's main lobby when court security guards said it would block their sightlines and provide a hiding place for criminals. Instead, the lobby was left open and clear, except for security detection equipment.

The staircase was relocated to the back of the building, where it protrudes into a small sculpture garden separating the courthouse from the existing apartment building. Because of zoning limitations, the architects were restricted in how far back they could extend the building. Installing the garden provided a transitional space, while the sculpture fulfilled the city's public art requirement. The sculptures create a peaceful vista from the glass-enclosed stairs and the hall at the back of the lobby. ■

Sources

Granite: *Lacroix et Fils Granite*
Curtain wall: *H. H. Robertson/Texas Wall Systems*
Built-up roofing: *GAF*
Glass: *Viracon*
Skylights: *Fisher*
Entrance doors: *EFCO*
Wood doors: *Eagle Plywood Co.*
Fire control doors: *McKeon*
Locksets: *Schlage*
Hinges: *McKinney*
Closers: *Rixson*
Panic devices: *Von Duprin*
Security devices: *Simplex*
Paints and stains: *Zolatone, Benjamin Moore*
Plastic laminate: *WilsonArt*

3 Ronald Reagan Federal Building and Courthouse Santa Ana, California

DESIGNED TO ACCOMMODATE THE COUNTY'S NEEDS FOR THE NEXT 25 YEARS, THIS COURTHOUSE INCORPORATES TECHNOLOGY AND TRADITION.

by Dana Holbrook

Project: *Ronald Reagan Federal Building and United States Courthouse, Santa Ana, California*
Owner: *General Services Administration*
Architect of Record: *Gruen Associates—Michael Enomoto, AIA, partner-in-charge; Debra Gerod, AIA, project manager; Tim McCormack, ALSA, landscape architect; Merv Burtnett, senior construction coordinator*
Design Architect: *Zimmer Gunsul Frasca Partnership—Robert Frasca, FAIA, design partner; R. Doss Mabe, AIA, principal-in-charge; Kelly Davis, AIA, project manager; Dave Gonrowski, project architect; Brooks Gunsul, Paul Engels, Allyn Stellmacher, Dusty Rhoads, Bob Furusho, Logan Cravens, Sharoon van der Meulen, Debbie Munson, design team*
Engineers: *Martin & Huang International, Inc. (structural); FBA Engineering (electrical); Tsuchiyama & Kaino Consulting (mechanical); Fuscoe Engineering, Inc. (civil); Law/Crandall, Inc. (geotechnical)*
Consultants: *Gruen Associates (landscape); Frances Krahe & Associates Inc. (lighting); McKay Conant Brook (acoustical, audiovisual); Rolf Jensen Associates (codes); ANC/Specifications (specifications); Heitmann & Associates Inc. (curtain wall); Lerch Bates North America (vertical transportation); Follis Design (graphics)*
Contractor: *Ray Wilson Company*

Cost: *$123 million*
Size: *603,750 square feet*

"Laws and institutions must go hand in hand with the progress of the human mind." This Thomas Jefferson quote, one of four inscriptions on the travertine facade of the Ronald Reagan Federal Building and United States Courthouse in Santa Ana, California, speaks as much to current thinking on courthouse design as it once did to societal evolution.

This courthouse, by the architectural team of Gruen Associates/Zimmer Gunsul Frasca Partnership, was "a preamble to the [General Services Administration's] Design Excellence Program in 1991 in which quality of design became our focus," says Abdee Gharavi, property development director of the General Services Administration (GSA). Although what Gharavi terms "the old style" of courthouse design, marked by poor space planning and rigid design, was not formally denounced, the GSA program "shifted toward a different kind of architecture that accommodates new technologies and matches the dignity of the court," he says.

It was this dual mandate that established the project as a case study for the GSA, suggests Robert Frasca, FAIA. "There is probably no building type more layered with tradition than the American courthouse, and no one who takes that tradition more seriously than those who occupy the Federal bench," he says. "We needed to give them symbols of the past in a modern setting. They wanted a 19th-century environment with state-of-the-art functionality and security."

Dana Holbrook writes about architecture and architectural technology. She lives in Westport, Connecticut.

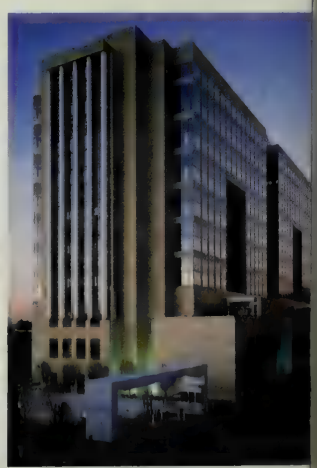
The $123 million structure, which at 10 stories is the second tallest in Orange County, stands on a 3.9-acre site in Santa Ana. It straddles two distinct urban areas: the old downtown, which features early-1900s low-rise retail buildings, and a civic center complex built in the 1960s.

The building gestures at classicism—the rows of columns flanking the entry pavilion are a symbolic detail and the pair of bronze nudes on the plaza honor the custom of allegorical civic sculpture—but the architects resisted arching backwards. "Santa Ana is a 21st-century city," Frasca says. "Making a postmodern building would have been an insult to the whole idea of moving ahead."

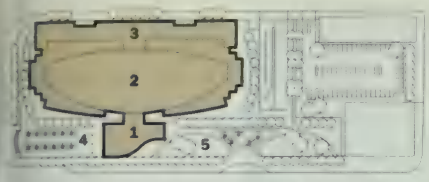
The tower, clad mostly in glass, rests atop a two-story podium. A projecting, travertine-clad entrance pavilion provides street identity. The tower houses four courtrooms on each floor. It is composed of three vertical layers: public galleries facing south, courtrooms at the center, and judges' chambers to the north. The south face of the tower is a horizontal grid of green glass and aluminum sunscreens.

To mitigate its 240-foot height and put it more in scale with surrounding structures, the building is set back from the road with a shallow plaza. Courtyard landscaping, including palm trees, smooths the connections among the courthouse, the neighboring civic center, and the adjacent open spaces.

The piano-shaped entry pavilion appeases the linear site, though "more programming than is visible was attached to it," says Debra Gerod, AIA, project manager for Gruen Associates. Adds Mary Filippini of the GSA, "In each of our new



The podium and tower are 10 stories, making the courthouse one of the tallest buildings in Orange County.



ITE PLAN

1. *Entrance pavilion*
2. *Tower*
3. *Podium*
4. *Plaza*
5. *Park*

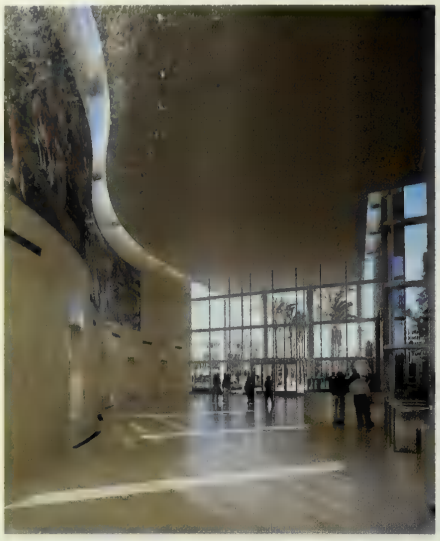
A shallow plaza offsets the building from the street. Careful planning went into the two-story entry pavilion, which nods to the courthouse's solemnity but also to the vital city around it.







Each floor of the tower holds public galleries, four courtrooms, and judges' chambers. The windows allow mountain views.

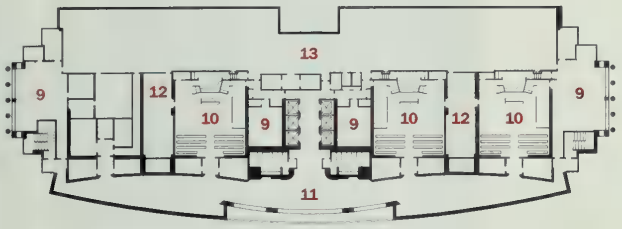




The curving wall of the entry pavilion holds a 15-by-70-foot mural by John Valadez (far left and below). The light-colored stone and wood interiors of the public areas represent a typically Californian palette. The wood louvers (left) prevent glare and help keep the public spaces cool; windows are tinted to prevent solar gain. The courtrooms (opposite) are traditional, aside from the domed ceilings.







1. *Lobby*
2. *Jury assembly*
3. *Jury orientation*
4. *Jury waiting area*
5. *District court clerk*
6. *Conference*
7. *Press area*
8. *GSA field office*
9. *Jury room*
10. *Courtroom*
11. *Public gallery*
12. *U.S. marshal area*
13. *Judge's chamber*



ourthouse buildings, there's a ramatic entry. These help in ad-ressing the neighborhood and iving the courthouse stature."

The north side of the podium, aced with a honey-colored traver-ine that the architects deemed ompatible with Santa Ana's Mediterranean climate, is capped y a roof garden for the judges. Below-grade building services and arking are also accessed from his side.

Disasters happen

The Santa Ana courthouse went hrough a number of changes be-ore it was completed. In 1993, it vas reduced from the original size f 730,000 square feet to 603,750 quare feet. The initial construction budget, slashed by $45 million during congressional cutbacks, cost the planners one floor and two subterranean levels for additional parking and storage. Construction took nearly four years.

The building was in design development when the 1994 Northridge earthquake occurred. By the time the federal building in Oklahoma City was bombed in 1995, the new courthouse had been approved by Congress. But both events proved instructional in the way the building was engineered and constructed.

"A terrorist blast from the ground does almost the same thing" as an earthquake, project manager Gerod says. "These horrible events happened in good time for our engineers, because the floor slab was just anchored to the foundation and not secured on top. After these disasters, we made some structural changes."

The building centralizes federal operations in the county, with six courtrooms each for district and bankruptcy courts, two for federal magistrates, and one appeals court. A 3,000-square-foot special sessions courtroom is large enough for trials involving up to 20 plaintiffs and defendants. Designed to house the growth of the courts through 2021, the building can accommodate up to 29 courtrooms.

Courtrooms are entered from public galleries. Sheathed in glass, the walls of the upper-level galleries allow distant ocean views. The light and, to some extent, the interior temperature within the galleries are modulated by wood sunscreens. Within the courtrooms, materials change from a blond wood-and-stone palette to the more somber and traditional cherry wood. The jury boxes, attorney tables, and lectern are fashioned in the same cherry as the paneling and have a California Arts and Crafts sensibility. To the delight of the judges, each of the courtrooms is topped by a 20-foot-high modified dome.

The technology inside the courtrooms couldn't "contradict the preeminence of the bench," Frasca says. United States District Court Judge Gary L. Taylor, who provided design guidance, agrees: "Too much technology in a courtroom can be bad. Things get tied up, go wrong, need fixing—all the glitches and delays are counterproductive to what we're there to do."

In the case of the Reagan Courthouse, between the time congress approved the project and the program was written and funded, there were significant changes in technology. These changes, as well as the need to save space for innovations to come, had to be factored into the design. At present, the floors are honeycombed with ducts for audio/visual cables and computer wires. The debate continues over when television cameras and access to the Internet may be allowed, though the cabling and other provisions are now in place, ready for this eventuality. ■

Sources

Built-up roofing: *Firestone*
Metal roofing: *Atlas*
Aluminum windows: *Kawneer*
Glass: *Viracon*
Skylights: *Fisher*
Wood doors: *Weyerhaeuser*
Locksets: *Schlage*
Exit devices: *Von Duprin*
Security devices: *Folger Adams*
Cabinet hardware: *Hafele*
Acoustical ceilings: *Armstrong*
Paints and stains: *Benjamin Moore*
Plastic laminate: *Nevamar*

4 Warren B. Rudman United States Courthouse Concord, New Hampshire

WITH A SYMMETRICAL LAYOUT AND A LIMITED PALETTE OF MATERIALS, A NEW COURTHOUSE RECALLS TRADITIONAL CIVIC STRUCTURES.

by Virginia Kent Dorris

Project: *Warren B. Rudman United States Courthouse, Concord, New Hampshire*
Architect: *Shepley Bulfinch Richardson and Abbott/PMR Joint Venture Architects*
Shepley Bulfinch Richardson and Abbott, Architects— Richard M. Potter, AIA, partner-in-charge; Jean Paul Carlhian, FAIA, design partner; Kevin Triplett, AIA, Vivian Fung, AIA, project designers
PMR Architects—David Page, AIA, partner-in-charge; Cliff Stockman, AIA, project architect; Gary Goudreau, AIA, Paul Hemmerich, AIA, job captains
Engineers: *LeMessurier Consultants (structural); Thompson Consultants (mechanical/electrical/plumbing)*
Consultants: *William Hoffman (landscape); Peter Coxe (lighting); Cambridge Acoustical Associates (acoustical)*
General Contractor: *Beacon Procon Joint Venture*

Cost: *$32.8 million*
Size: *187,200 square feet*

There is no mistaking the Warren B. Rudman United States Courthouse in Concord, New Hampshire, for anything other than what it is. The formal, symmetrical granite-and-limestone facade recalls the monumental American civic structures of the late 19th century. The fact that the new building conveys seriousness and solemnity is no accident.

"Justice is a serious business," says Jean Paul Carlhian, FAIA, partner-in-charge of the project for Boston-based Shepley Bulfinch Richardson and Abbott, Architects, who worked in a joint venture with Nashua, New Hampshire–based PMR Architects. "A courthouse has a different purpose than an office building, school, or house. We wanted people to recognize instantly that they were entering a court of law."

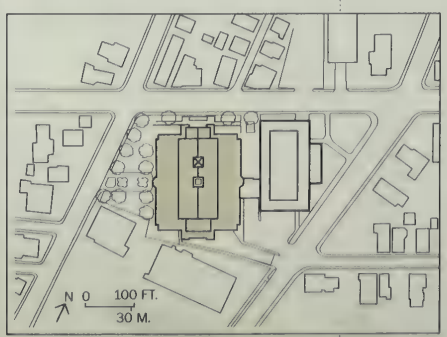
The $32.8 million courthouse is also formal and symmetrical within, from the geometric stone flooring to the regularly spaced skylights. Carlhian created a plan based on a structured progression of public spaces; it would be a difficult building for a visitor to get lost in. The main level includes a lobby, courtrooms, jury-assembly space, and what many consider the most important space of all: the office of clerk of the court, where scheduling and planning for the entire operation take place. The second level is a secure floor closed to the public and largely occupied by facilities for the United States marshals and a holding block for prisoners.

Most of the building's eight courtrooms are located on the third level, which is accessible by means of a granite-and-stainless-steel staircase that rises from the main lobby. Although public elevators are nearby, most visitors opt for the graceful stairway. The fourth floor consists of the judges' chambers and the court library.

A stainless-steel sculpture, depicting Justice with her arms raised to tie a scarf over her eyes, stands in the lobby. The work was commissioned under the General Services Administration's Art in Architecture program, whose goal is to place the works of American artists in prominent buildings.

Judicial process

Norman H. Stahl, the court's chief judge, worked closely with Shepley Bulfinch on the building program. Judge Stahl, chairman of the federal courts' security and facilities committee, part of the Judicial Conference of the United States—which makes recommendations about building operation policies—toured several courthouses completed as part of the GSA's courthouse construction initiative.



The new courthouse was constructed on a tight site three blocks south of the granite-clad state capital complex and three blocks west of the city's central business district. The courthouse sits adjacent to the James C. Cleveland Federal Building, a 1960s structure that houses the federal courts, along with postal service facilities. A hallway at ground level connects the two structures and serves as a single entry point to the two-building complex. Three bankruptcy courtrooms remain housed in the original building; the rest are housed in the new structure.

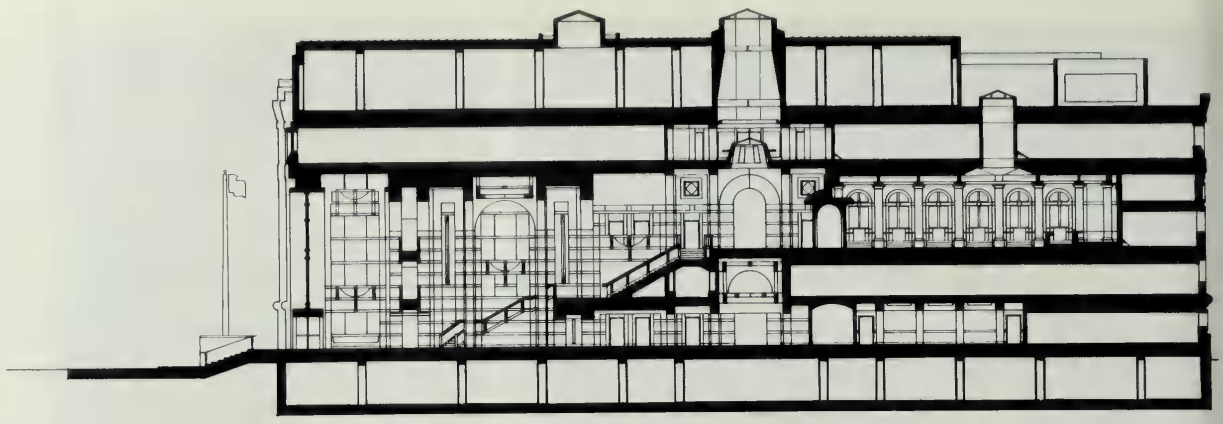
Because Concord is one of the nation's 13 original district courts, the architects were mindful of the look and durability of the new building's materials. They chose a limited palette of stone, cherry wood, and stainless steel to convey a sense of longevity and durability as well as dignity for the building.

Judge Stahl felt





The classical details and symmetrical proportions of the Rudman Courthouse recall major civic buildings of the late 1800s. The facade materials—limestone and granite—express the enduring qualities a courthouse should embody, according to federal design standards.



SECTION THROUGH MAIN CIRCULATION



The courthouse lobby is presided over by a stainless-steel sculpture of Justice (above).



Daylight from skylights (right) and windows permeates the space and keeps visitors connected to "the real world," as a consulting judge pointed out.

that every courtroom should have a view to the outside. When people cannot see outdoors, he says, they "become disassociated from the real world"; maintaining that connection is important in order for individuals to be fair and realistic in adjudication proceedings. To accommodate Judge Stahl's request, Shepley Bulfinch arranged the courtrooms around the perimeter of the building, using classically inspired vertical and round windows with bulletproof glass for security.

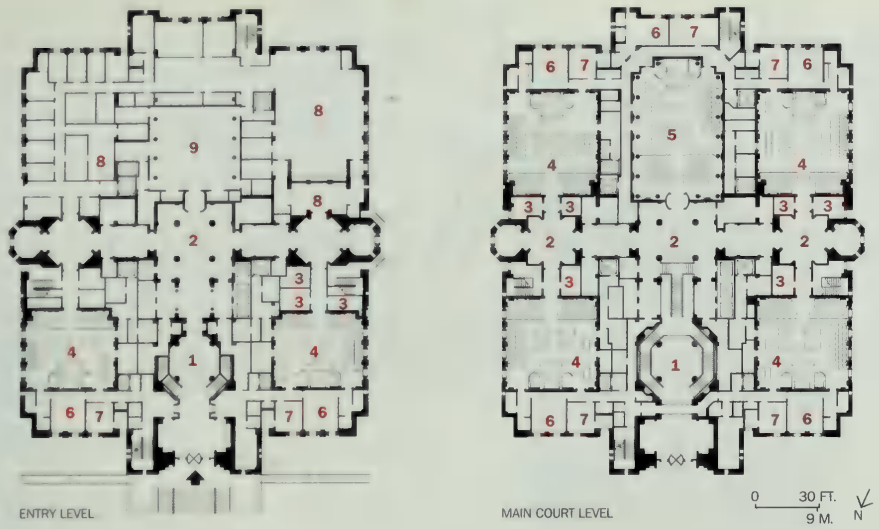
Other security measures include three separate circulation systems—one for the public, another for judges and staff, and a third for prisoners—and 11 separate elevators. This prevents jurors from running into prisoners in hallways and judges from overhearing lawyers talk in elevators. Visitors pass through a security checkpoint at the building's main entrance, and prisoners are brought through a secure vehicular entrance in the basement. Closed-circuit cameras let marshals monitor activity throughout the building.

The placement of the courtrooms was made possible by the judges' willingness to have their private chambers and a shared legal library located on the top floor of the building, separate from the courtrooms. Typically, federal judges, who are appointed for life, prefer to have their chambers, personal legal libraries, and offices for their clerks adjacent to a courtroom that essentially becomes their judicial fiefdom. Concord's congenial arrangement, Judge Stahl says, was acceptable to the judges because they understood it would allow for more flexible and sophisticated courtrooms.

Use of the individual courtrooms is now scheduled according to the technical or spatial needs of specific legal cases and does not hinge on a judge's ownership of any particular space. "The judges go where we fit them, and it works very well," explains James R. Starr, court clerk.

Latest technology

The largest courtroom accommodates up to 300 people. Custom-designed wood tables can be moved around the room as needed,



1. *Stair hall*
2. *Lobby*
3. *Conference*
4. *Courtroom*
5. *Special proceedings courtroom*
6. *Jury room*
7. *Robing room*
8. *Clerk of courts offices*
9. *Jury assembly*

nd the judge's bench can be con-erted to accommodate three idges. Custom furniture and wood-orking details, including handrails nd moldings, were used throughout ie building.

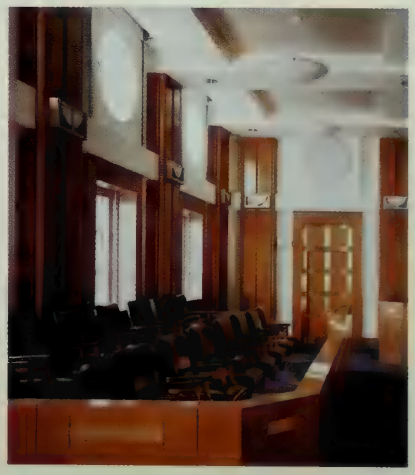
Each of the courtrooms has a ry box equipped with removable 6-inch video screens on which the rors can view evidence electroni-ally during trials. The incorporation this new technology, as well as her devices such as sophisticated ourtroom-reporting equipment, elps save time in the trial process. resenting jurors with exhibits on a deo screen rather than paper can ut the duration of a trial by 20 per-ent, according to Judge Stahl.

Several courtrooms contain evices similar to overhead projec-rs that transmit images from aper to the jurors' video-display nits. One courtroom is wired so the wyers can transmit information om personal computers to parti-pants. (The judge, however, ulti-ately controls all the information at is disseminated from a master ontrol system.) Using a CD-ROM, ne lawyer recently culled a few ages from a lengthy users' manual nd presented them to the jury lectronically. The process was more xpeditious than in the past, when rors would have been presented ith evidence on paper.

An additional advantage to the ew technologies is that the court clerk can look and listen in on the proceedings in any courtroom via a computer in his office.

The architects also left room for the future expansion of cabling and connections. Technological advances in the legal process, Carlhian admits, are just beginning. ■





Elegantly finished custom cherry woodwork throughout the courtrooms belies the sophisticated technology it contains. Monitors for evidence display, computer connections, and security measures, all built in, help expedite the adjudication process.

Sources
Built-up roofing: *Firestone*
Metal roofing: *Atlas*
Aluminum windows: *Kawneer*
Glazing: *Viracon*
Skylights: *Fisher*
Wood doors: *Weyerhaeuser*

5 La Crosse County Courthouse La Crosse, Wisconsin

A NEW COUNTY COURTHOUSE CONSOLIDATES LAW ENFORCEMENT, INCARCERATION, AND COURT PROCESSES WITHIN ONE BUILDING.

by John E. Czarnecki

Project: *La Crosse County Courthouse and Law Enforcement Center, La Crosse, Wisconsin*
Owner: *La Crosse County*
Architect: *DLR Group—Jim Conley, AIA, partner in charge; Matt Johnson, project architect; Bruce Omtvedt, AIA, project manager; Dick Bast, engineering; Keith Stockman, construction management; Joe Haines, AIA, criminal justice programmer*
General Contractor: *Macket and Johnson, Inc.*

Cost: *$18.5 million*
Size: *169,000 square feet*

Six years before moving into their own courthouse in late 1997, a group of judges, staff, and at least 20 county supervisors from La Crosse County, Wisconsin, took a bus trip to tour newly constructed courthouses in the state. Along the way, they learned what worked best and what could be improved in facilities located in other counties. With the county's leadership gathered together and with one topic to discuss, they turned the ride back to La Crosse into a five-hour discussion about the county's hopes for a new courthouse. That ride proved important in initiating dialogue among elected officials and court personnel.

"It really was a fantastic discussion," says Steve Steadman, district court administrator for the seventh judicial district of Wisconsin, which includes La Crosse. "We developed a good cooperative atmosphere, a common need to do the right thing for citizens of this county."

County officials had initially explored the possibility of constructing only a new jail to relieve overcrowding at the existing jail and courts complex in La Crosse, which was built in the early 1960s. But after taking a more comprehensive look at law enforcement needs, representatives decided to completely replace the jail and courts building with a new structure, to be located across the street. (The old facility was later turned into county administrative offices.)

Their plans centered on a prominent site along a major highway leading into La Crosse's historic downtown, where many of the surrounding buildings are more than 100 years old, including a few Richardsonian Romanesque gems. The pedestrian-friendly streets are lined with mostly brick and stone buildings two stories or taller with storefronts on the ground level.

Separating the downtown from the courthouse is a square block of surface parking—the former site of La Crosse's third courthouse, built in 1903 and torn down in 1965. In a fit of modern exuberance, a grand old post office nearby was also demolished around the same time to make way for a new one that was nearly windowless.

Today, the new law enforcement center sits amid a civic campus of large government structures built within the past 40 years, including the former jail and courts building, offices of health and human services, La Crosse City Hall, and the main post office. The campus, clustered with buildings that have little relationship to each other and are surrounded by surface parking, sits in stark contrast to the fine-grain downtown area.

The fifth courthouse in La Crosse County's history, the new 169,000-square-foot building was designed by DLR Group, based in Omaha, Nebraska. The $18.5 million project includes five courtrooms; a jail with 172 beds housed in eight pods that range from minimum to maximum security; and offices for the court staff, the district attorney, the clerk of courts, the sheriff's department, and 911 emergency dispatch.

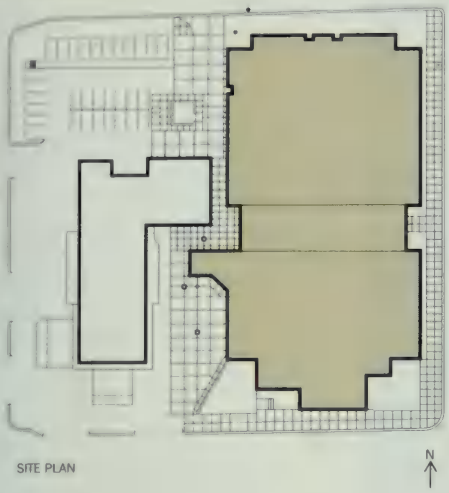
Taking responsibility

By providing both architectural and construction management services on this project, DLR Group helped La Crosse County realize cost savings by managing multiple prime contracts. The firm prepared separate bid packages for various building components. The owner, in turn, purchased materials directly and saved sales tax. By taking on greater responsibility, the architect was able to create a building that cost $110 per square foot.

"For a long time, architects have steered away from taking responsibility for the construction," says Bruce Omtvedt, AIA, who served as project manager. "The more we can get that back, the better the projects are going to be and the more control we have over the outcome of the project."

The constrained, 1.7-acre site,

John E. Czarnecki is a former editor of Crit, *the journal of the American Institute of Architecture Students.*

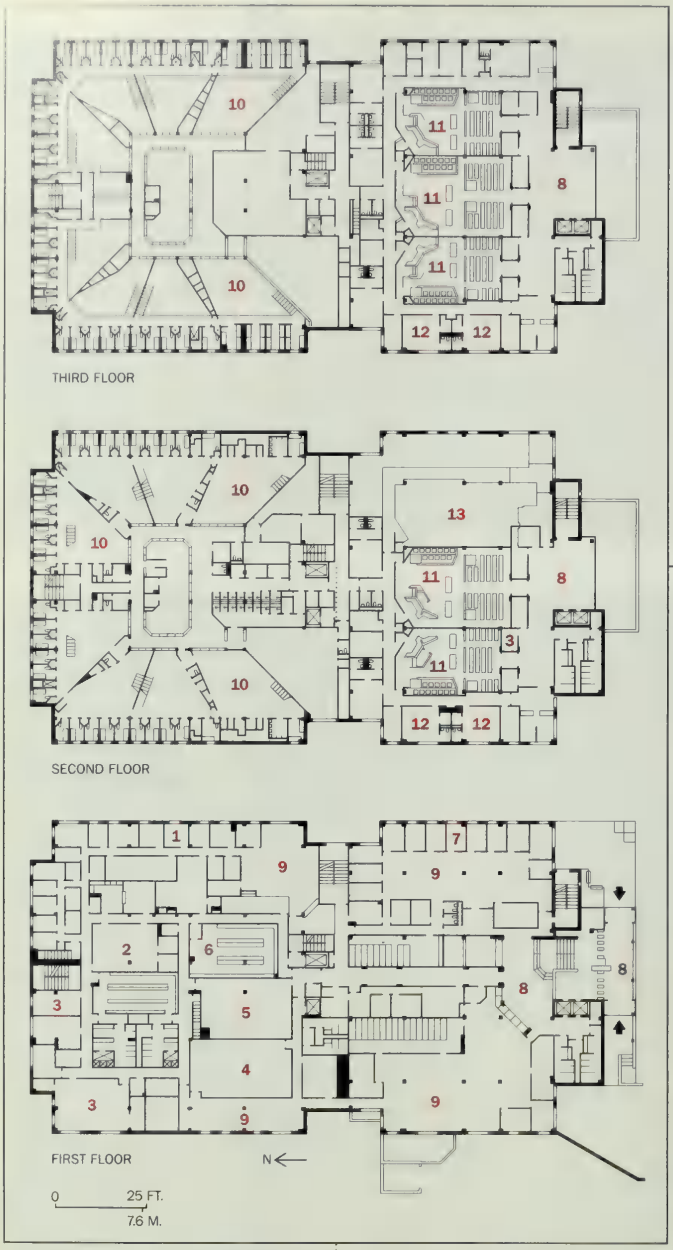


SITE PLAN





The fifth courthouse in La Crosse County history, the new center arose from the need for more jail cells and a decision to incorporate court functions within the same building. DLR Group created a unified brick and glass facade.



1. *Police offices*
2. *Squad room*
3. *Conference*
4. *Jury assembly*
5. *Law library*
6. *Evidence*
7. *District attorney offices*
8. *Lobby*
9. *Open offices*
10. *Inmate cell/dayroom*
11. *Courtroom*
12. *Judge's chambers*
13. *Future development*

To have greater control over the complicated program and to save money, the architects took substantial control of the construction process by preparing separate bid packages for the various building components, including the 172-bed jail, the sheriff's department, and 911 emergency dispatch.

with its juxtaposition of adjacent new and old buildings, provided a challenge for DLR. The architects were charged with designing a new building—part courthouse, part police office, and part jail—that relates to its surroundings and is welcoming to the public yet conveys an image of law and order.

"It was a definite intent to have a building that would reinforce a sense of justice," Omtvedt says. "While we didn't hide the fact that it is a jail, the focus is on the public courthouse entrance of the building. The goals of the building design were staff efficiency and flexibility first."

The four-story building is similar in scale and color to the surrounding modern civic structures. Creating something "old looking" to harmonize with the buildings downtown would have made the building out of character with its immediate neighbors. And, as the conversations on the bus that day pointed out, the need for increased jail cells and security is a new problem, not a historic one.

Ribbon windows and bands of brown brick on the tan facade emphasize the building's horizontality. Tempered reflective glass on the courthouse side of the building and a glass-clad reflective polycarbonate on the jail side communicate an image of law enforcement and serve a functional purpose, visually separating the building's occupants from outside observers.

Balancing security and service

Inside the courthouse, the architects had to strike a balance, creating a secure environment that was also user-friendly. Once visitors pass a security checkpoint with metal detectors at the front door, they face few other obvious security mechanisms. "We didn't want to repel people and scare them with overt security measures," Steadman says. "All of the security and intrusiveness is at the front door."

A clear hierarchy is evident in the building's plan, with service functions for the jail on the ground floor, offices that serve the public on the first floor, and the courts above. The public can access the offices of the district attorney, court clerk, and register in probate at easily identifiable counters on the first floor.

Three courtrooms are located on the second floor and two on the third. Waiting areas for both floors, located directly above the building's main entrance, have dramatic floor-to-ceiling views of downtown and the river bluffs. An unfinished shell space, where a sixth courtroom could be added, is on the third floor. The shell space demonstrates the foresightedness of a county that has added a judge every 15 years or so. To finish the shell space today would cost approximately $300,000, substantially less than new construction.

Each of the courtrooms include a sound system with individually controlled microphones, wiring for videoconferencing, modem connections for personal computers, assistive listening devices for the hearing-impaired, and an alarm system in case of emergency.

A combination of materials and fixtures in the courtrooms, including carpeting and acoustical ceilings, help reduce noise. "The quietness of the courtrooms influences the conduct of the people who come in them," Steadman says. "The building gives the message that we're up to something important, and please behave accordingly." ■

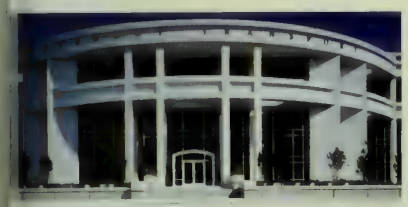
Sources

Curtain wall: *Kawneer*
Precast concrete: *Crest*
Manufactured wall panels: *Robertson Co.*
Elastomeric roofing: *Firestone*
Glass: *Viracon*
Entry doors: *Kawneer*
Security grilles: *Cornell Iron Works*
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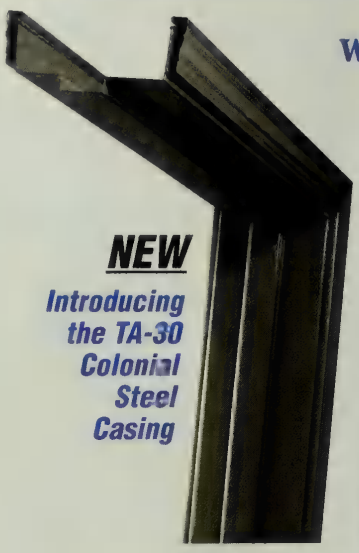
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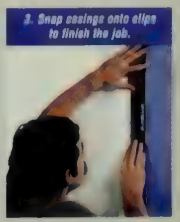
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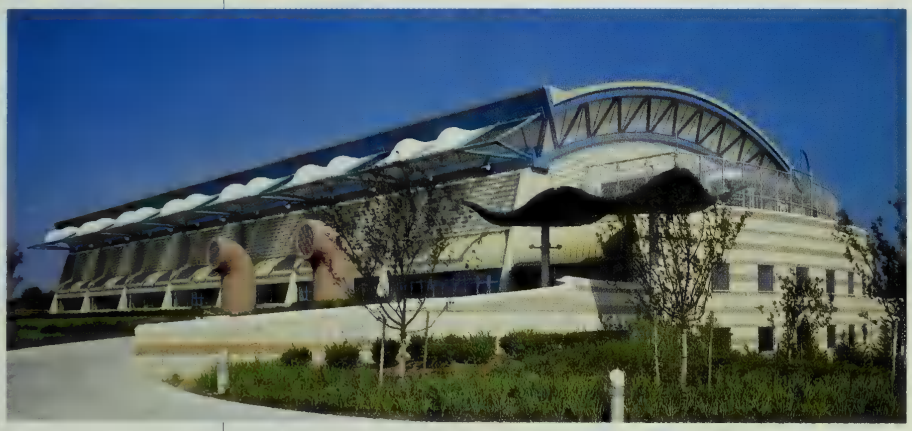
Building a Gold Medal Pool

BECAUSE OF ITS MANY COMPLEX DETAILS, THE GOODWILL GAMES POOL IN EAST MEADOW, NEW YORK, IS CONSIDERED BY SOME SWIMMERS TO BE THE BEST POOL IN THE COUNTRY.

by Charles Linn, AIA

If you could design the perfect swimmer's body, it wouldn't be that different from the perfect building to house a swimming pool. Both would have a high strength-to-weight ratio. Both would minimize surface area—in the case of the swimmer, to reduce drag; in the case of the building, to lower heat loss and gain. Both would efficiently consume the resources put into them. And both would be flexible.

A new natatorium in New York State embodies these ideals. The Goodwill Games Swimming and Diving Complex at Eisenhower Park in East Meadow, New York, was designed by the office of Richard Dattner Architect for the 1998 games. (Today, the pool is used for recreational swimming, training, and swim meets.) To make the opening of the games, it was imperative that the building be constructed in 18 months; the budget was set at $26 million. Although the building was designed to seat 4,000, it was unlikely that the venue would play host to such a large audience very often. "We decided that rather than overbuild to achieve such capacity," says Richard Dattner, FAIA, "we would devise a way to a open up the building to increase seating capacity only when it was necessary." The construction budget would be invested, Dattner adds, in "systems that would diminish the long-term costs of operations and maintenance—things like stainless-steel ductwork—and incorporating the most up-to-date competition pool features."



The complex had the potential to overwhelm the relatively undeveloped Eisenhower Park landscape. Architect Richard Dattner half-buried the building's semicylindrical shape to diminish its scale.

Structural system and building envelope

The swimming and diving complex was built on a gently sloping site, a grade change that naturally rendered the building handicap-accessible at both the pool and spectator levels and allowed much of the structure to be built into the earth, decreasing its apparent mass.

The profile of the building is also made less daunting by its semicylindrical shape, formed by a steel-arch structural system, designed by Dattner and engineer Ed DePaola of Severud Associates, that has several advantages over standard post-and-truss construction. While it reduces the building's exterior exposed roof area to minimize heat loss and gain, it still allows for the height required for competitive diving; the highest point on the lower chord of the truss is located almost exactly

Project: *Goodwill Games Swimming and Diving Complex, Eisenhower Park, East Meadow, New York*
Owner: *Nassau County Department of Recreation and Parks*
Architect: *Richard Dattner Architect—Richard Dattner, FAIA, partner-in-charge; Joseph Coppola, AIA, Beth Greenberg, AIA, project managers; Perry Hall, Jacob Tukuru, Paritosh Kumar, Hernando Quijano, Robert Axton, Mike Notaro, Paul Bauer, project staff*
Engineers: *Severud Associates (structural); Mariano D. Molina (mechanical); A. James de Bruin & Sons (civil)*
Consultants: *Abel, Bainnson, Butz (landscape); Counsilman/Hunsaker and Associates (natatorium); Federman Design & Construction Corp. (cost estimating); Robert Schwartz & Associates (specifications); Domingo Gonzales Design (lighting); Peter George Associates (acoustical); Pentagram (graphics)*
Construction Manager: *Tishman Construction Corporation*

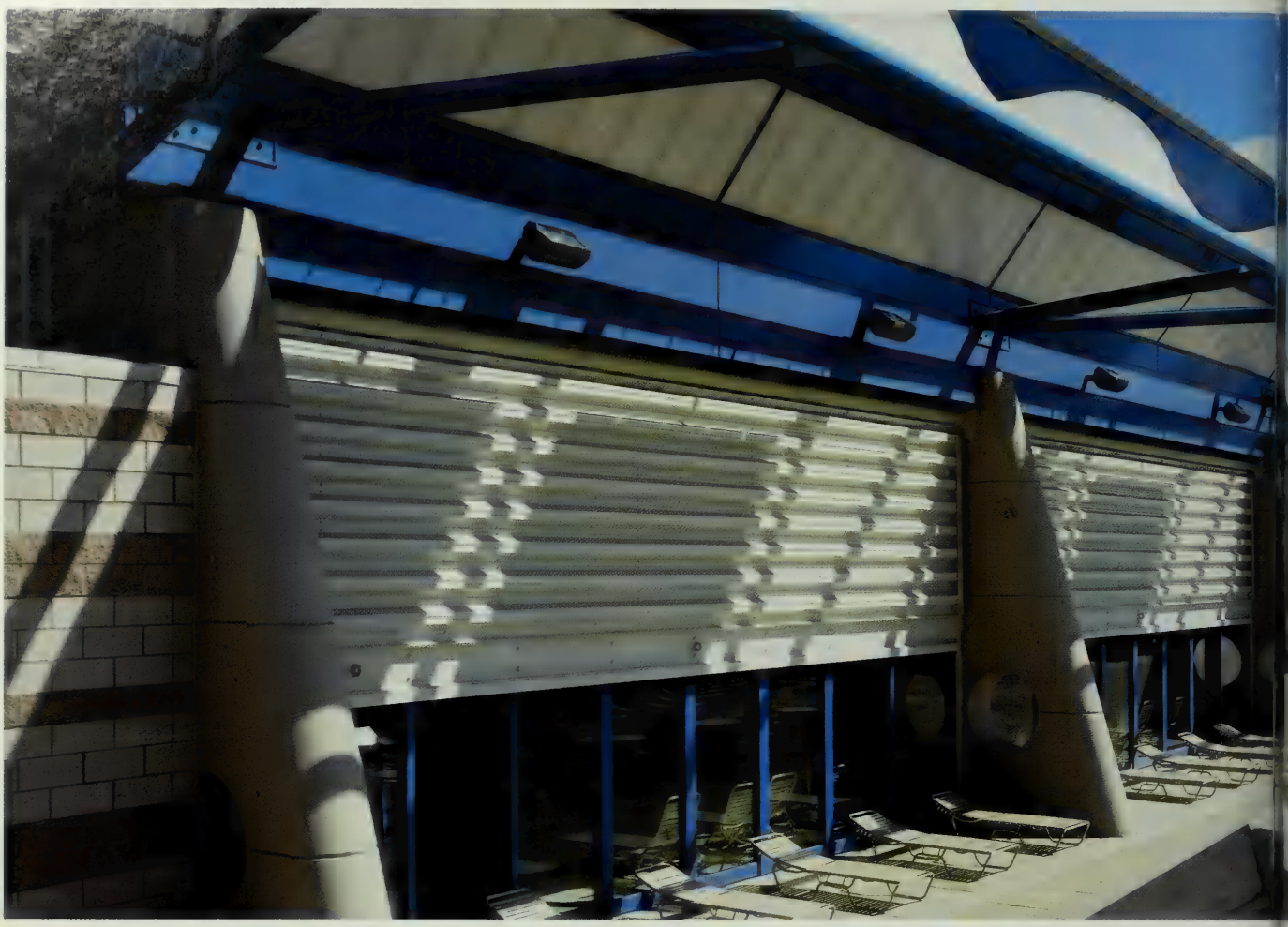
CONTINUING EDUCATION

Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD/AIA Continuing Education article. To receive credit, turn to page 138 and follow the instructions.

LEARNING OBJECTIVES

After reading "Building a Gold Medal Pool," you should be able to:

1. *List the desirable criteria for a swimming pool design.*
2. *Describe how to minimize the problems caused by humidity in a swimming pool.*
3. *Describe ways of reducing costs in pool construction.*
4. *Explain how to design a pool for faster swimming speed.*

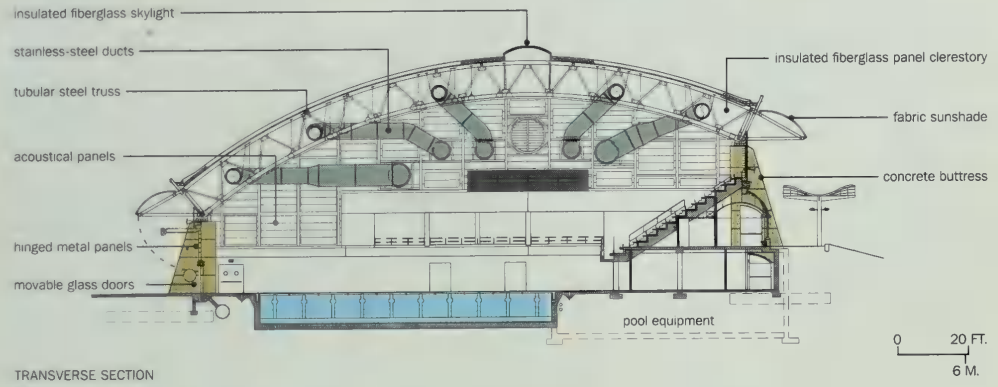






The pool level is on grade with the building's south elevation (above and left). To open up this level for extra seating, the glass doors next to the patio can slide to one side and the metal paneled wall above can pivot up and away from the building until it is horizontal. The north side of the building (below left) is at the same level as the spectator seating. Stretched fabric sunshades protect both sides of the building from direct sunlight during the summer.





TRANSVERSE SECTION





Massive concrete buttresses (far left) support tubular steel roof trusses. Steel outriggers that support the fabric shades are anchored to the roof trusses but thermally isolated from them with structural rubber pads to prevent icing. Openings inside the cast-concrete buttresses create a corridor parallel to the permanent spectator seating (left).

ver the 10-meter diving platform. There are no columns to obscure pectators' sightlines. A cast-in-place concrete buttress supports the horontal thrust and deadweight load at both ends of the trusses, which are iangular in section, with the apex pointing down. Long-span metal ecking crosses the trusses' top chords and between the trusses themselves ithout intermediate structural support. Round steel sections used for ie trusses also help prevent condensation (which leads to corrosion) y creating better ventilation than the flat surfaces of steel angles and

OOF TRUSSES WERE FABRICATED IN SECTIONS SO THEY COULD BE TRUCKED N, RAISED, AND BOLTED TOGETHER.

sections would, and by discouraging the settling of dust, which attracts nd holds moisture.

The eight trusses that form the roof of the building were prebricated in three sections, so they could be trucked to the site on flatbed railers. Construction could not have been simpler: the truss sections on ach end were raised and secured to the buttresses; the middle section was oisted between the end trusses and bolted into place; and intermediate usses were placed between the arches for lateral stability. The construcon manager, Tishman Construction Corporation, helped the architects esign a falsework that rolled along the bottom chord of the intermediate usses, allowing work on ducts, lighting and electrical systems, roofing, and piping to take place above while construction on the pool proceeded below. Says Dattner, "We had to work on both to keep the construction on schedule, and because it is just too dangerous to have one crew working over another, we constructed the falsework."

The base of the building is masonry, laid in alternating bands of light and dark tan. Light-colored prefabricated insulated metal panels were installed above the masonry, with an insulated metal roof over the trusses. Inside, most of the end walls and the exposed ceiling between the trusses are covered by perforated metal panels filled with noise-dampening material that is enclosed in moisture-proof material; any water that might become trapped inside would reduce the panels' effectiveness in absorbing sound.

Most of the rooms throughout the building feature energy-saving fluorescent lighting. In the pool area, metal-halide lamps are housed in open-bottomed glass shades, which provide a direct-indirect light distribution. Most of the light is reflected down to the pool, and the remainder is refracted up onto the ceiling. At the top of the exterior walls in the pool area, a narrow band of translucent, insulated fiberglass panels is used to admit daylight; a narrow barrel vault of the material was installed at the roof's highest point to bring daylight into the center of the building.

To avoid building for maximum capacity, the architects devised a method of opening up the building to accommodate temporary seating. Between each pair of buttresses on the south side of the pool, where there



is no permanent seating, walls made of glass doors can slide to one side. Metal wall panels above the doors can then be pivoted upward until they are horizontal, creating an opening 30 feet wide by 19 feet high where bleachers can be installed. Permanent stretched-fabric sunshades protect spectators.

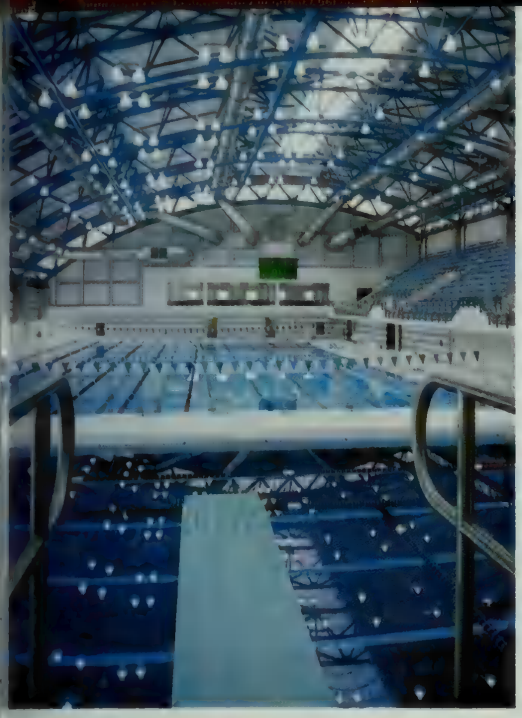
The swimming pool structure was made of gunite—concrete sprayed at high pressure directly onto the earth over a reinforcing steel cage, with little or no extra framework. Pools can also be made with formed-in-place concrete or with braced, heavy steel walls installed around the perimeter of a concrete floor slab. "Gunite was possible here because the soil on the site had a high concentration of naturally compacted sand," says Dattner. "It was economical, since the contractor was able to dig a cavity for the pool and the accompanying trenching for utilities with a great deal of accuracy, spraying the concrete without the expense of constructing formwork." The 12-inch-thick walls were then trowel-finished with a cementitious waterproofing material and covered with ceramic tile.

Pool mechanical systems

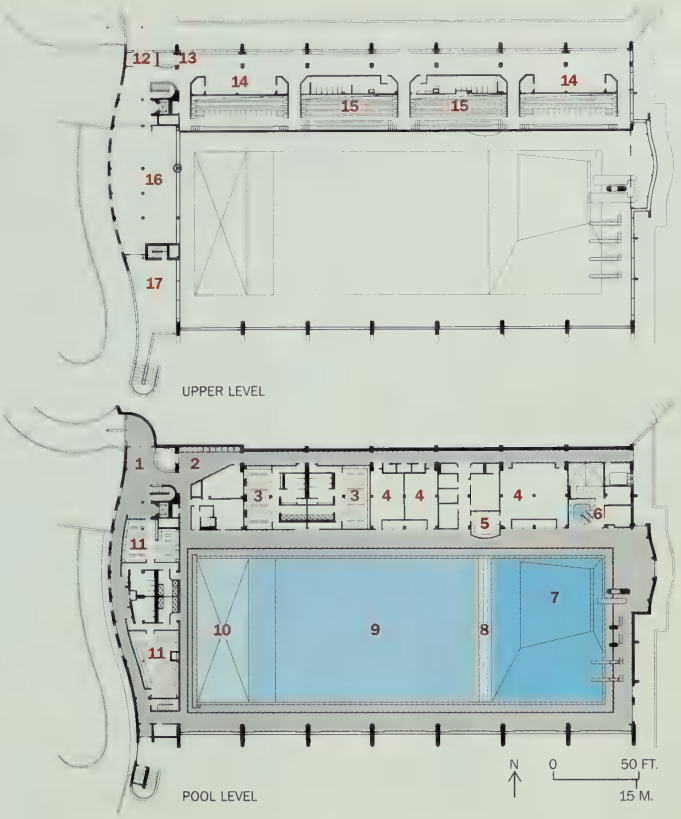
Swimming pool buildings are notoriously difficult to air-condition because they are saturated with humidity. Water can condense on any cold surface—ducts, windows and curtain-wall systems, roof decking—causing drips, corrosion, and, in the winter, falling ice. For the Goodwill Games complex the architect used a system designed especially for swimming pool buildings to reduce humidity and recover energy from heated air. Water condenses in units located near the ceiling of the building; the heat recovered during the condensation process is circulated to the basement and run through a heat exchanger to preheat the pool water. Air inside the building is constantly circulated not only to ensure that moist air reaches the condensers but also to avoid the build-up of chlorine fumes.

Water flows into gutters around the pool perimeter, where trash is caught by cover grates, and continues on to a primary filter made of stainless-steel mesh that collects any other large matter. It is then run under high pressure through tanks filled with sand and treated with chlorine tablets the size of hockey pucks before being returned to the pool. (Tablets are easier to handle than liquid chlorine, which also has a limited shelf life.)

The racing section of the pool is 25 meters wide by 53 meters long and can be divided into any number of configurations for different programs. To divide the pool, three one-by-25-meter movable







The diving platforms (opposite and left) are cast-in-place concrete. Floating movable bulkheads divide the pool (visible in middle of photo above).

1. *Lobby*
2. *Vending*
3. *Locker room*
4. *Training room*
5. *Timing and sound*
6. *Spa*
7. *Diving*
8. *Movable bulkheads*
9. *Racing*
10. *Movable floor*
11. *Locker room*
12. *Vestibule*
13. *Security*
14. *Concessions*
15. *Permanent seating*
16. *Multipurpose*
17. *Roof deck*

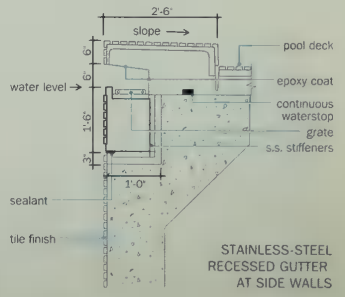
HOW SWIMMING POOL CONSTRUCTION CAN GIVE RACERS THE EDGE

"I remember canoeing on a lake in Canada where the water was so still that the surface was like a mirror, and there was almost no resistance to the boat," says Joe Hunsaker, of Counsilman/Hunsaker and Associates, a St. Louis architectural firm that specializes in swimming pool design. "If you could reproduce these conditions in a pool, it would be perfect for racing."

Unfortunately, racers create waves and underwater turbulence, extra movement that takes precious fractions of seconds off their competition times. To create a "fast" pool, Hunsaker offers a few rules of thumb and construction tips.

A racing pool should have wide lanes to minimize interference from adjacent swimmers' waves. The pool should be a minimum of two meters deep—the depth necessary to prevent turbulence from the bottom of the pool. At the Goodwill Games facility, a grid of water inlets at the bottom injects water into the pool under pressure, diffusing it equally in all directions. This creates a slight upward current that prevents turbulent interaction between the bottom of the pool and the swimmer and reduces waves on the surface.

The design of the pool's gutters is of great importance as well. When water splashes out of the gutter into the pool, it will slow down swimmers, especially those in the end lanes. Shallow gutters can fill up quickly as water is displaced when racers dive in and begin to swim. The bottoms of these gutters are 18 inches below water level (see detail right), which gives them great capacity. The grates that cover the gutters, made of parallel vertical slats oriented perpendicular to the length of the pool, also minimize backsplash. Water is quickly drained from the gutters, cleaned, and stored in surge tanks; from there it is reintroduced into the bottom of the pool.



STAINLESS-STEEL RECESSED GUTTER AT SIDE WALLS

Although these and other innovations in pool design that allow racers to go faster may seem extreme, "a half-inch wave may cost a swimmer 1/100th of a second," notes architect Richard Dattner. "That lost time could be the price of a medal."

bulkheads—made of large metal and fiberglass tanks that span the pool and rest on the gutters—can be towed into place by two people using ropes on each end.

The shallow end of the pool is covered by a nine-by-25-meter fiberglass platform. Scissor jacks beneath the floor can raise or lower this end of the pool in a matter of minutes, using a shaft fitted with worm gear and driven by two synchronized motors inside the pool equipment room. The floor can be used in many ways; people in submersible wheelchairs, for example, can enter the pool at one height and then be lowered to another level for their activities. For safety's sake, the changing depth of this portion of the pool is indicated by an electronic display board mounted on a nearby wall.

Complete diving facilities

The diving end of the pool is 25 meters wide by 20 meters long, with diving platforms cantilevered off a pylon. Similar in appearance to the buttresses supporting the roof trusses, the pylon was constructed of poured-in-place concrete in a single pour. The platforms, located at the standard heights of three, five, 7½ and 10 meters above the water, are covered with a resilient, nonslip surface. Coaches prefer to have all of the platform heights available, so that divers in training can gradually work their way up.

During training, devices called spargers are turned on under the diving platform to add highly pressurized air to the water entering the pool. The effect is to disturb the water's surface, making it easier for divers to judge their distance from the pool. In addition, the air helps create a cushion at the pool's surface, lessening the possibility of injuries from missed maneuvers. Although spargers are not used during competition, divers still need to gauge the distance from the platform to the surface of the pool. To accomplish this effect, tiny jets located at the pool's edge disrupt the water just enough to keep it from taking on a mirrorlike appearance.

The success of the Goodwill Games Swimming and Diving Complex should be measured by not only its popularity with competing swimmers but also its acceptance by the general public. According to Nassau County Recreation and Parks Commissioner John B. Kernan, three times as many annual memberships as originally expected have been purchased since the pool opened to the public. ■

Sources

Long-span roof trusses: *Metropolitan Steel, Canam Manac*
Miscellaneous metal: *Aztec*
Curtain wall: *Efco, Kawneer*
Metal panels: *Centria/Ken Herman*
Elastomeric roofing: *American Hydrotech*
Metal roofing: *Merchant & Evans/ Ken Herman*
Aluminum windows: *Efco*
Glass and glass block: *PPG, Fluoroglass*
Insulated plastic glazing: *C.P.I.*
Entrance and sliding doors: *Kawneer*
Metal doors: *Acme*
Special upswinging doors: *Aztec*
Locksets: *Best*
Hinges, closers, exit devices: *Sargent*
Acoustical ceilings and suspension grid: *Armstrong*
Paints and stains: *Tnemic*
Acoustical panel: *Leek Industries*
Wall tile: *American Olean*
Pool tile: *Dal-Tile*
Resilient flooring: *Nora*
Lighting: *Edison Price, Hubbell, Legion, Zumtobel, Columbia, Illumination Concepts and Engineering, Kim*
Elevators: *Payton*
Pool: *Norberto & Sons*
Bulkheads: *Norberto & Sons, Avanti*
Movable floors: *K.B.E.*

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

INSTRUCTIONS

- Read the article "Building a Gold Medal Pool," using the learning objectives provided.
- Complete the questions below, then check your answers (page 166).
- Fill out and submit the AIA/CES education reporting form (page 166) or file the form on ARCHITECTURAL RECORD's Web site at www.archrecord.com to receive two AIA Learning Units.

QUESTIONS

1. How can condensation be reduced in a swimming pool building and used to heat pool water?

2. What design factors may affect the swimming speed in a pool?

3. How can gunite be used to reduce construction costs?

4. How did the design accommodate flexible seating capacity?



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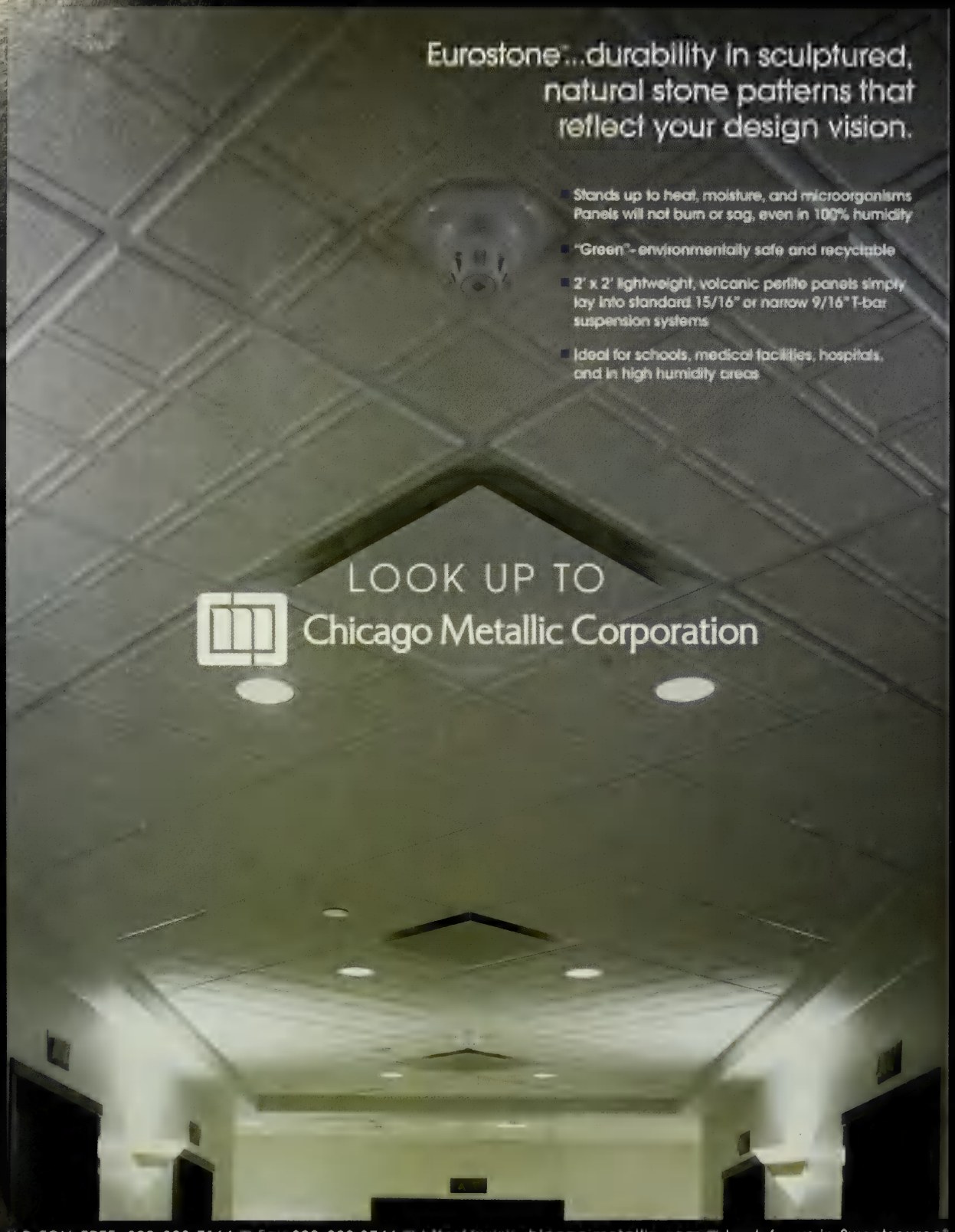
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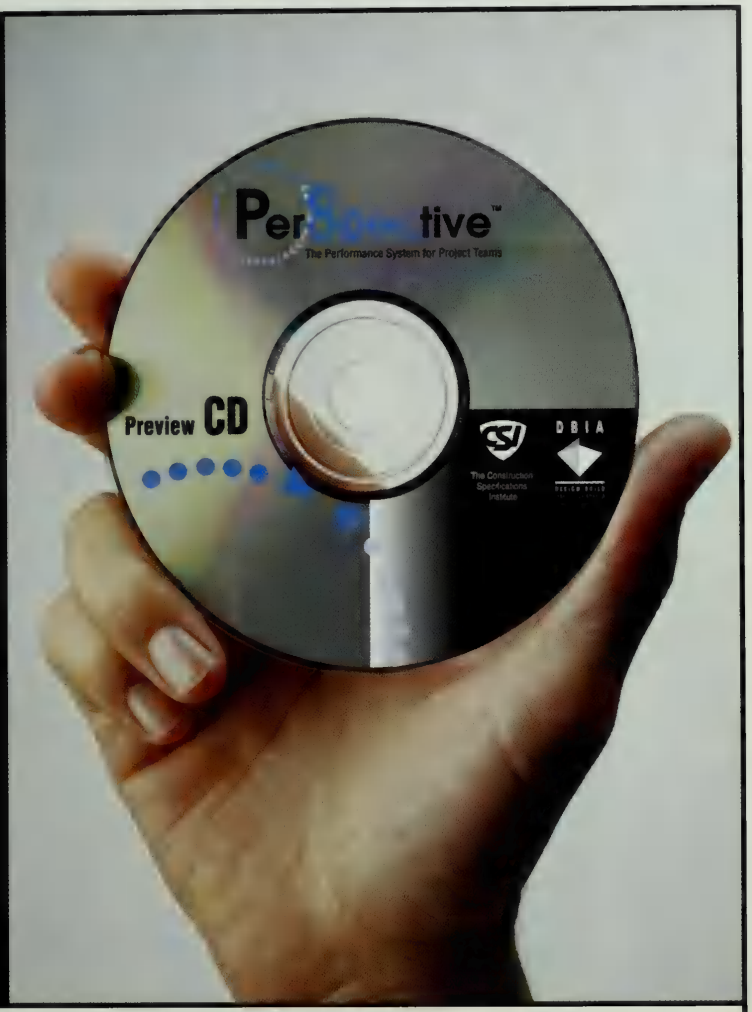
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TILE OF SPAIN

When a Facade Needs a Thick Skin

DESPITE THE POPULARITY OF THIN-VENEER STONE CLADDING, ARCHITECTS CONTINUE TO USE TRADITIONAL THICK VENEER TO TAKE FULL ADVANTAGE OF THE MATERIAL'S QUALITIES.

by Charles D. Linn, AIA

These days architects can finish buildings with almost any material—EIFS, metal panels, cast stone, glass-and-aluminum curtain wall, masonry, tile. Since the 1960s, though, one of the most popular forms of cladding for large commercial buildings has been thin-veneer, prefabricated stone panel systems. Developed at a time when, for stylistic as well as economic reasons, many architects sought to eliminate ornamentation from their buildings, thin-veneer systems have many advantages. Not the least of these is the fact that they can cost considerably less than traditional thick-stone veneer and classical detailing methods.

The large, lightweight panels (which can be as little as three centimeters thick) are factory manufactured and attached to support armatures of steel frame, precast concrete, or even glass fiber–reinforced cement. In the carefully controlled environment of a fabricating plant, the assembly process can be executed with a high degree of dimensional accuracy. The panels are then shipped to the site, quickly hoisted into place, and secured to the building's frame.

Thin-veneer cladding works best in applications where many large, duplicate pieces are required, such as in the curtain-wall systems used in so many of the high-rise office buildings of the last 30 years. "It is relatively costly to set up the production of panels, so you have to do a lot of them to make the operation pay off," says Chuck Jones, of Jones, Huehn, Imhoff Engineers, whose firm specializes in designing natural-material cladding systems.

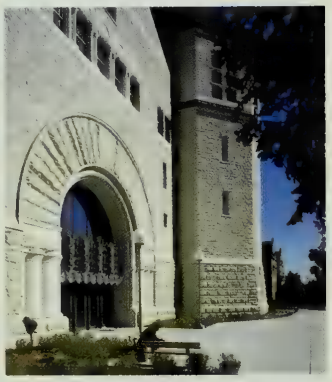
ARCHITECTS STILL DETAIL STONE IN TRADITIONAL WAYS FOR GOOD REASONS.

Thin-veneer systems aren't ideal for every situation. Running bond, for example, could be simulated on large, thin panels, but the vertical joints would give away the fact that the stone had been panelized. And in markets where skilled labor is readily available, thin-stone veneer may not have a substantial economic edge over thick veneer .

"We're seeing fewer [thin-veneer panels] than we did before," says Jones. "It isn't that there's anything wrong with them. On the right job, they're very practical." He says such systems may be less common nowadays because of the type of rock being specified. "Panels work best with harder stones, like granite or slate," he explains. "It is possible to cut material like limestone just as thin, but you don't have enough left to keep the stone from breaking around anchors under load. If architects are using more limestone at a particular time, there will be fewer thin-panel systems."

But the most important reason for the decline in popularity of thin-stone cladding is that flat, sawn, and polished panels can't take full advantage of the material's natural attributes: the interesting shapes,





The School of Industrial and Labor Relations at Cornell University, Ithaca, New York, by Herbert Beckhard Frank Richlan & Associates (left) and Hale Library at Kansas State University, Manhattan, Kansas, by Brent Bowman and Associates with Hammond Beeby Rupert Ainge (right). The architects of both buildings designed facades with thick stone veneers to achieve the appearance of mass and depth.

color, and grain that are revealed when stone is fractured, for example. The architectural qualities of stone—recognized for centuries by architects, builders, and masons—are being rediscovered by contemporary practitioners. Rather than using less expressive thin veneer, architects are choosing to detail stone in traditional ways, using three- to five-inch-thick veneer, laid by hand and intermittently supported on shelf angles.

According to Jim Owens, executive director of the Indiana Limestone Institute of America, thick-veneer stone is "frequently used on buildings that are intended to project the image of longevity: university and governmental buildings and, especially in the last few years, high-end residential projects." Two recent buildings—the School of Industrial and Labor Relations at Cornell University (above left, see page 144) and Hale Library at Kansas State University (above right, see page 146)—offer fine examples of this type of cladding and stone detailing. Battering, the deep rustication of joints, the heavy hewing or pitching of the stone face, even simulated arches—all featured on these buildings—could be attempted with thin veneer, but the effects would be difficult to achieve and would result in excessively heavy prefabricated panels.

Like many advances in architectural technology, the development of thin-veneer stone cladding was driven by the architect's desire to make structures lighter, easier, and faster to build—which this construction method helped accomplish. But we must remind ourselves that sometimes traditional methods, such as thick-stone veneer and fine detailing, can produce buildings that make the best use of materials and most engage the user.





SCHOOL OF INDUSTRIAL AND LABOR RELATIONS, CORNELL UNIVERSITY

In describing his inspiration for the design of New York State's School of Industrial and Labor Relations at Cornell University, in Ithaca, New York, architect Herbert Beckhard, FAIA, is specific about who has influenced his work. "You're influenced by things you see and things you like," says Beckhard, who was a design partner of Marcel Breuer. "I like Breuer, of course, and Aalto, Kahn, Corbusier. So no one should be startled at some of the things I do."

As for his selection of materials for the Cornell building, Beckhard explains, "I started my career in architecture with Breuer, and we had a great deal of interest in using natural materials, especially in our residential work. Given this, I have always taken the opportunity to try and use a natural material like stone."

The School of Industrial and Labor Relations is clad with honed and hewn Indiana limestone laid in running bond; special features made of honed greenstone imported from Germany; and a base course of thermally finished granite. "I've spent a lifetime avoiding polished materials," he says. "What makes limestone work on an old classical building is using it to create ornate detailing. But my buildings have no ornate detailing, so I try to generate interest with the material itself."

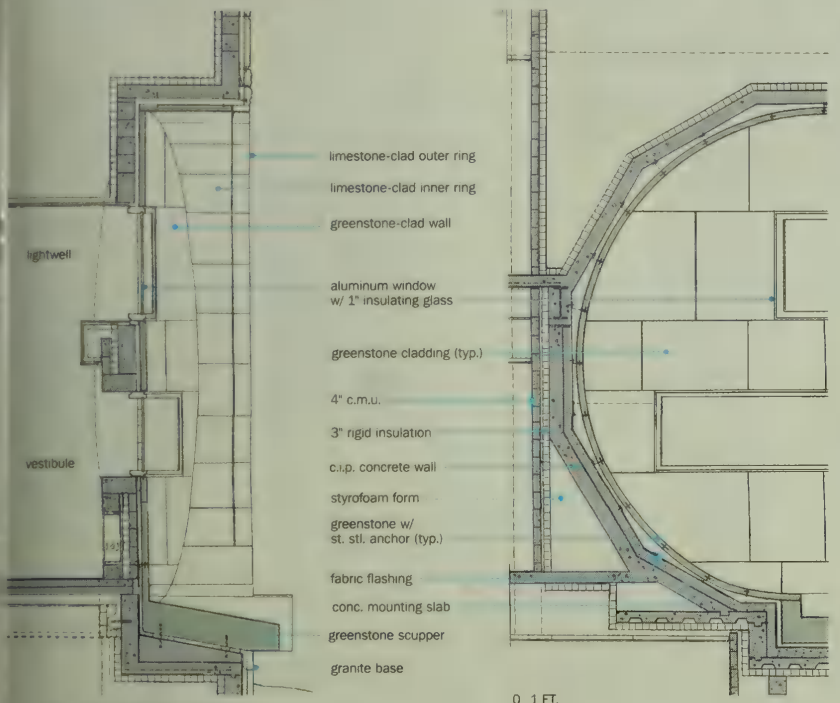
"I don't like to decorate my buildings," Beckhard continues. "I think giving them interest using form is better. Decoration has a brief period of acceptance, and I like to think that the buildings I design will feel good 30 or 40 years from now."

To maximize the natural qualities of the stone, Beckhard had the honed limestone veneer cut so that its striations run at an angle to the ground, aligning with the building's sloped parapet walls. He also placed vertical stone projections, which he calls fins, next to windows set back from the wall plane. "I like to give a facade a dimensional quality," Beckhard says, "but you have to somehow develop reasons for doing that. People often ask if the fins are for sunshading. I say, 'No, those are my Corinthian columns.' "

Other forms that create interest on the facade without superfluous ornament are the greenstone-lined cylindrical insets with monumental scuppers cut into the facade. Inside each is a pair of windows that allow daylight into the building's auditorium vestibules. Speculating on whether these might be seen as references to Louis Kahn's work, Beckhard chuckles, saying, "I never mind if someone says something I designed refers to Kahn. He was a good guy. And the glorification of the scupper is not a new idea. Look what Corbusier did with it at Ronchamps. We both like a bold expression of how the water is going to be taken care of."

Beckhard indicates that in the absence of ornamentation, even the way stone is joined can be an expression of the material's strength. "There are a lot of terrible things done to stone," he says. "One of the worst is the mitered joint. To me, that's a weak transition. I don't use mitered joints for anything. Not even wood."

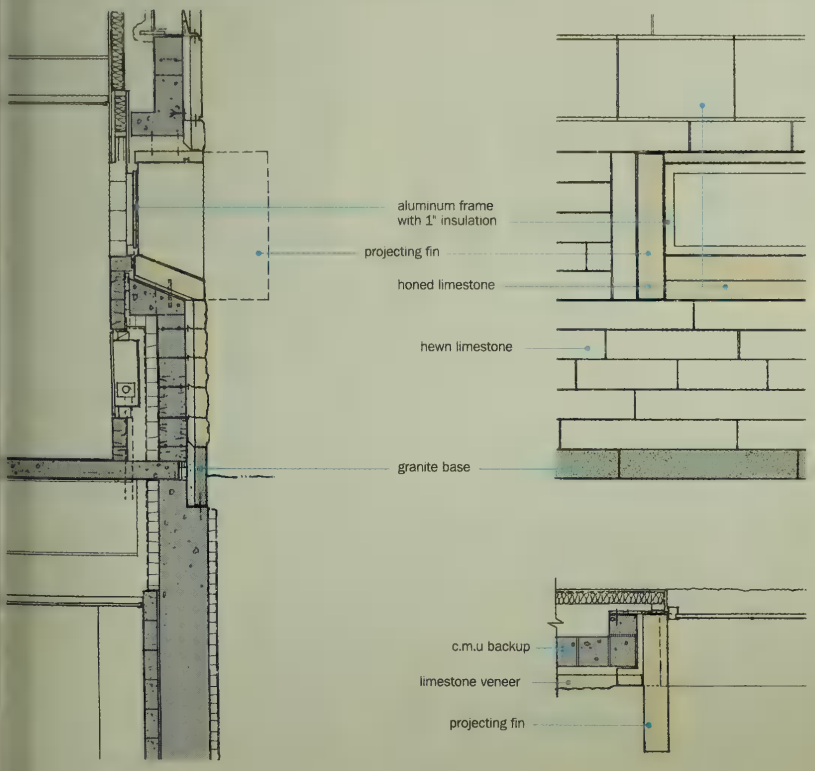
Project: *School of Industrial and Labor Relations, Cornell University, Ithaca, New York*
Architect: *Herbert Beckhard Frank Richlan & Associates*
Limestone supplier: *Indiana Limestone Co.*
Greenstone supplier: *Carl Schilling Stoneworks*
Stone installer: *Cleveland Marble Co.*



WALL SECTIONS AT AUDITORIUM VESTIBULE



A cylindrical surround of greenstone highlights windows in the school building's vestibule. To create the cylinder's wall, the architect pinned segments of honed stone to an octagonally shaped backing of poured concrete with stainless-steel hardware.



TAILS OF WINDOWS WITH PROJECTING FINS



Vertical projecting slabs of stone, which Beckhard calls his "Corinthian columns," are placed next to deeply inset windows to add interest to an otherwise unornamented facade. Courses of hewn stone, as well as honed blocks cut at an angle so that the natural striations run diagonal to the ground plane, add variety to what could have been a simple, flat wall.





HALE LIBRARY, KANSAS STATE UNIVERSITY

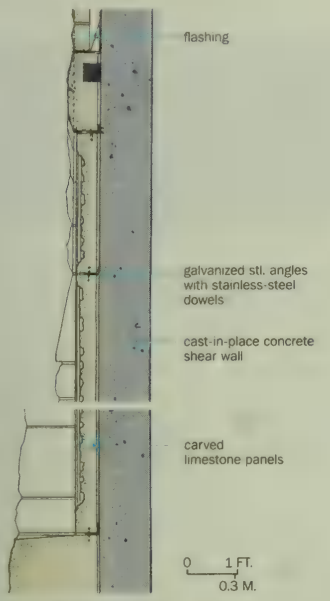
Several Kansas State University buildings were designed around 1900 by Topeka architect J. C. Holland, who was deeply influenced by the work of H. H. Richardson. These limestone university buildings had grand towers, arched windows, and monumental entries supported by columns, and were detailed with carvings based on local flora. "These buildings were in some ways quite simplified, even crude, compared with Richardson's," says architect Brent Bowman, AIA. "But that reflects the sort of conservatism you would have found on the prairie then."

Bowman and associate architect Thomas Beeby, FAIA, studied Holland's style while they were preparing to design an addition to Hale Library, a 1927 Collegiate Revival building designed by Paul Weigel, who taught at Kansas State University's school of architecture. Originally, the library—which could have stood on almost any American campus in the 1920s—was to have two wings attached by a loggia. But it came in over budget, and only one wing was built. Other additions, which weren't stylistically compatible with anything else on campus, were made to the library in 1955 and 1970.

Given the space required for the library's needs and the area available on the site, wrapping new construction around the existing additions was the only sensible way to expand. Choosing a style for the addition was not so easy. "We wanted to do something kind for the campus," Bowman says. "Even though the existing library was in the Collegiate Gothic style, the Prairie Romanesque campus buildings were much more beloved." The choice of style for the library was also influenced by the availability of Cottonwood limestone, a local stone favored by masons and sculptors for its workability and light golden color. Cottonwood comes out of the ground relatively soft, but "case hardens" in time, its surface hardening as it ages.

The building's carved stone was designed by Kent Bloomer, an adjunct professor at the Yale School of Architecture. Bloomer was inspired by native plants and grasses for his series of half-scale clay maquettes. Using these models, Alan Tollackson, a sculptor based in Emporia, Kansas, carved the final stone details and panels. "Kent has a wonderful ability to weave the sculpture into the mass of the building so it doesn't seem like applied ornament," Bowman says. "But it was really the dialogue that Kent and Alan had about the clay models that pulled the detailing together with the building."

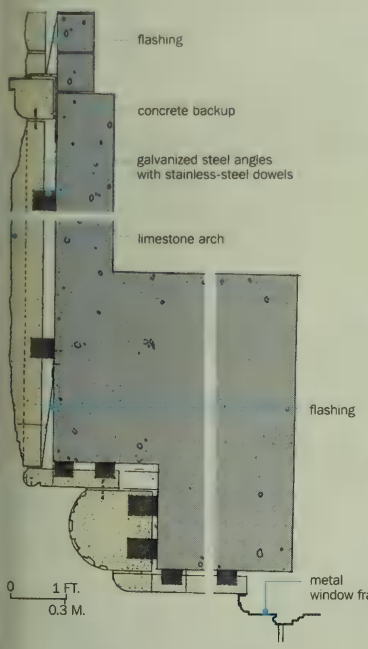
Project: *Hale Library, Kansas State University, Manhattan, Kansas*
Client: *State of Kansas—David Debusman, AIA, State Architect*
Architect: *Brent Bowman and Associates, Architects*
Associate Architect: *Hammond Beeby Rupert Ainge*
Artisan: *Kent Bloomer*
Stone sculptor: *Alan Tollackson*
Stone fabricator and supplier: *Dave Born, Born Stone*



WALL SECTION AT CARVED PANELS



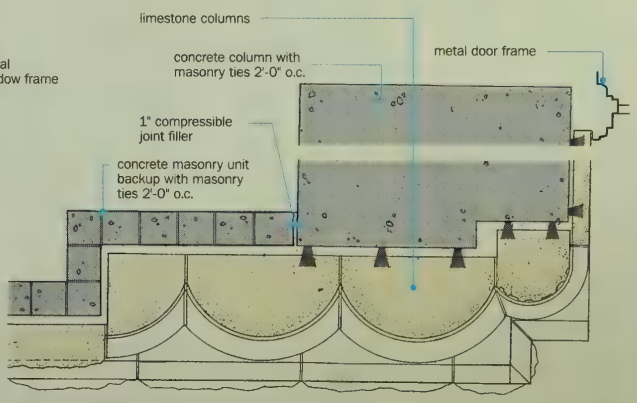
A stone panel, carved by sculptor Alan Tollackson, was based on Kent Bloomer's maquette of prairie plants. As the shadow line (photo left) and section (far left) indicate, the panel's lower two-thirds are set into a battered veneer wall. What appear to be blocked-up arched openings never actually contained windows: they were constructed on the building's exterior to maintain the rhythm of a series of real openings when structural loading of a wall prevented cutting a window.



SECTION THROUGH HEAD OF MAIN ARCH







PLAN SECTION THROUGH COLUMNS AT MAIN ARCH

H. H. Richardson might have disapproved, but the massive-looking stone arches and walls of Hale Library are hand-laid stone veneer anchored to poured-in-place concrete backup walls. Kent Bloomer's maquettes were used by Alan Tollackson in hand-carving the trim for the building's stone arches. Bloomer also designed and fabricated the metal screen that spans the arch.

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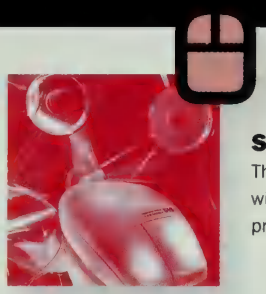
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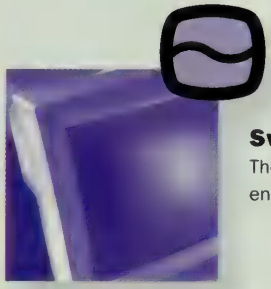
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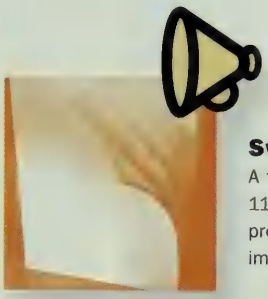
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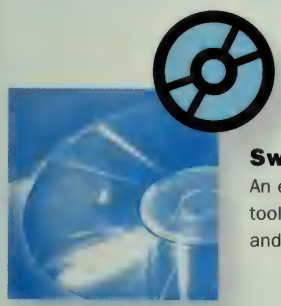
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NEW PRODUCTS

From Miami to Montreal, a building's exterior cladding will be exposed to some of the most extreme conditions of any building system (with the possible exception of lockers in a high school gym after football practice). American builders and architects are becoming more interested in using ceramic tile as exterior cladding. Perhaps taking their cue from the European projects featured below, which used terra-cotta and porcelain, American designers are discovering that ceramic cladding offers frost resistance, high breaking strength, and shock resistance in addition to its more obvious aesthetic qualities. —*Rita F. Catinella, Products Editor*

WITH LIGHTWEIGHT CLAY-TILE CLADDING, NEW STATION SEEMS TO FLOAT ON AIR



ating back to 1901, the old railway tation in Amersfoort, Netherlands, as a small, inconspicuous building hat was both inconvenient and utdated. It therefore came as no urprise to commuters when the enter of Amersfoort was trans-ormed not only by the construction f a new station building but also by he development of an entirely new val-shaped plaza, surrounded by ew buildings and space for cyclists, ars, buses, and taxis to approach nd park.

What may have surprised com-nuters, though, was the design. old shapes projecting from the lass front announce the new sta-on and make it the focal point of he new square. Seemingly weight-ess and supported only by pylons, he two-story office sections located bove the shops on both sides of he central hall jut out far into the quare. The railway tracks and plat-orms at the rear of the building are ccessible via the high central hall nd a passageway spanning the racks below.

The architects, Arcadis Bouw/nfra BV, of Amersfoort, used steel, lay-tile panels, and glass as the lominant materials in the distinctive new station. All of the massive building elements are hidden behind an Argeton clay-tile facade, which conveys an impression of lightness. The arch-shaped design of the facade lining was made possible by the small size of the panels. Patented in Germany in 1984 by Möding, Argeton was introduced in the United States last September exclusively through Shildan U.S.A. Inc. Available polished, unpolished, and brushed, the tiles are fitted to aluminum or wooden support structures using fastening elements in stainless steel or aluminum. The heat insulation consists of mineral-fiber material; all materials used are nonfading and resistant to frost, corrosion, salt water, and aggressive substances.

Lightweight and replaceable

"The advantage of any dry-joint system is that if you have a problem with one brick you can move it out and install another one," says Moshe Steinmetz, president of Shildan USA. "We believe these will be the bricks of the future."

Because of its low weight per unit of area, particularly where low weight was an important prerequisite, and its high noise-absorption capacity, the Argeton system met all requirements with respect to design, construction, and structural stability. Moreover, the matte surface texture of the natural red, polished clay-tile panels—in conjunction with the light coming in from all sides—underlines the open feeling of the new station.

516/549-4592. Shildan USA Inc., Huntington, N.Y. **CIRCLE 200**

PORCELAIN AND TECHNOLOGY USED IN CLADDING NEW IMOLA HEADQUARTERS

When architect Enea Nannini needed to find a specialist in exterior cladding for the new factory headquarters for Cooperativa Ceramica d'Imola (CCDI) in Imola, Italy, he didn't have to look far. That's because Imola Engineering, the technical division of CCDI, uses computerized graphic systems to assist designers with the application of large slabs of fine porcelain stoneware.

For the building's facade, Nannini used three-by-three-foot polished porcelain slabs that were mechanically fastened to the substructure of the facade. The slabs, from Imola's Top 9200L line, make up approximately 15,000 square feet of the facade. While ceramic tile generally provides building exteriors with a fire-resistant surface that is virtually maintenance-free, porcelain's low water absorption makes it ideal for outdoor use in climates subject to frost.

"The only alternative to [porcelain] would be a good-quality granite," explains Arturo Mastelli, president of Imola Marketing & Services, Inc., a subsidiary of CCDI, "and in this case it is difficult to find granite with the warm color of porcelain."

Not only is porcelain color-fast, notes Mastelli, but it's very close to the coloration of the materials used in the buildings in the surrounding area. Also, in order to achieve the same mechanical resistance from granite slabs for the mechanical attachments used, they would need to be two inches thicker than the ½-inch-thick porcelain slabs, greatly increasing costs.

Energy-conservation issues

But aesthetics and product costs weren't the only reasons why porcelain tile was chosen for the project's exterior cladding. Systems for preventing energy waste are becoming increasingly important, particularly in Italy, and therefore buildings must be better insulated. Because insulating materials work best in the absence of humidity, they must be properly protected by an exterior facing. Cladding with porcelain tile effectively protects the insulation while also providing an attractive facade.

"In Europe, energy conservation is a major issue due to high cost and environmental concerns," says Mastelli. "With this system they are achieving an estimated 20 to 25 percent savings in oil and energy costs."



305/445-6433. Imola Marketing & Services, Coral Gables, Fla. **CIRCLE 201**

CERAMIC TILES AND BEYOND

Featuring a hard, color-fast, and impermeable surface, ceramic offers timeless qualities that make it as appropriate for the design of new projects as for the renovation of older buildings. Easy to maintain and reliable, ceramic can be used in its traditional applications, such as floor tiles, as well in more untraditional ones, such as shading systems.



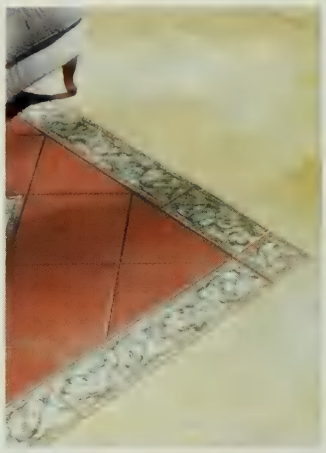
▲ Warming up cold feet

Hidden beneath the tiles, the Warm Tiles electric floor-warming system from Easy Heat uses a network of heating cable to gently warm ceramic, slate, and marble floors to the desired temperature. The system features a one-piece length of flexible warming cable evenly spaced in the mortar beneath the tiles, eliminating the need for electrical connection on the floor. 800/537-4732. Easy Heat, New Carlisle, Ind. **CIRCLE 202**



► Ceramics for work or play

American Marazzi Tile introduces two new colors, Cavaliere (almond) and Barone (beige), which round out the distressed-stone appearance of the Castello line. All colors are available in a 12-by-12-inch size complemented by six-by-six-inch and six-by-12-inch modulars. The Castello line's Class 4+ durability rating, ADA suggested .60 COF rating, hand-finished decos, and multiple trim options (including cove bases) make it appropriate for commercial or residential settings. 972/226-0110. American Marazzi Tile, Sunnyvale, Tex. **CIRCLE 205**



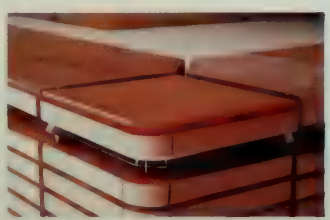
▼ Ceramic accessories

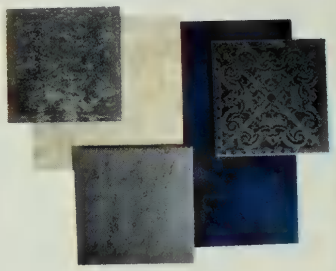
The Ann Sacks Collection of ceramic knobs, pulls, and bath accessories are now available as coordinates to the company's tile lines. Bath accessories, including a robe hook, towel bar, corner shelf, tissue holder, and two soap dishes, have been introduced in four designs and a variety of color glazes. 503/281-7751. Ann Sacks, Portland, Ore. **CIRCLE 204**



▼ Ceramic skin

The Banca Popolare di Lodi in Milan, designed by Renzo Piano, features a terra-cotta facing from Il Palagio that Piano used as a "double skin" on the surface of the building. 212/980-1500. Ceramic Tile Department, Italian Trade Commission of New York, New York City. **CIRCLE 203**



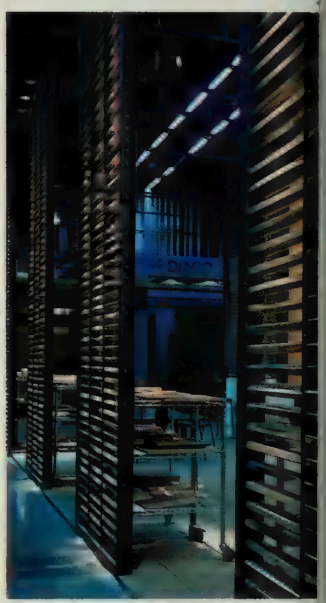


▲ Spain has it covered

Tiles from more than 100 tile manufacturers will be on display at The Pavilion of Spain at Coverings, held this month in Orlando. A large array of porcelain tiles will be shown, including products from Alcalagres and Pamesa (shown above). 305/446-4387. Trade Commission of Spain, Coral Gables, Fla. **CIRCLE 207**

▼ Shading and security

Sannini Impruneta offers terra-cotta louvers that can be used as sunshades, security protection for doors and windows, room dividers, and retail display systems. Louvers are available in two sizes, the standard 7 1/16 by 2¼ inches and 19 1/16 by ¾ inches. Rods can be connected between the terra-cotta panels for added security, and panels can be adjusted to open and close like Venetian blinds. The terra-cotta is made of clay from Sannini's own quarry in Impruneta, Italy. 212/758-2593. EX, New York City. **CIRCLE 206**





▲ Getting domestic

Monarch Ceramic Tile offers the company's first four domestically produced lines. New glaze formulations, body compositions, and application techniques have been combined to create products that feature a full complement of trim options to customize any installation. 800/BUY-TILE. Monarch Ceramic Tile, Inc., Mesquite, Tex. **CIRCLE 208**



He wanted to bring back the magic. But it was obvious he couldn't do it alone.

When the owners of Canada Life's executive headquarters decided to renovate their historical building, there was only one place to go: back. Occupying one of Toronto's most renowned landmarks, they wanted every aspect of their restoration to be faithful to its original 1930 Beaux Art style while incorporating the efficiencies and amenities of the 21st century. Facing such stringent guidelines, designer Cliff Atkinson called on Sherwin-Williams' historically-researched and consistently accurate paint colors to turn back the clock and re-capture the feelings this building once evoked.

Interior Design Firm - *Atkinson + Design*
Location - *Canada Life / Toronto - Ontario, Canada*
Project Paint Colors - *Sherwin-Williams ColorAnswers®: Amber Grain SW1348, Wedding White SW1913, Paper Lantern SW1360, Irish Cream SW1115*
Products - *Sherwin-Williams latex and acrylic paint*

"TAKE ME BACK," THEY PLEADED.

Too much time had passed. Yet she believed they still had something worth saving.

After 62 years, it became apparent that the historic Delaware County Courthouse needed order in its eleven period-specific courtrooms. From Georgian to Chippendale to Hepplewhite and Adams, each room represented a different style of architecture which had faded with time and consistent use. Using a scheme of six to eight paint colors per room, successful renovation called for more than 80 historic colors. Turning to Sherwin-Williams' meticulous color matching, architect Sandra Baggot was able to restore the courthouse to its original grandeur and bring justice to light.



©Terry Scholl Photography

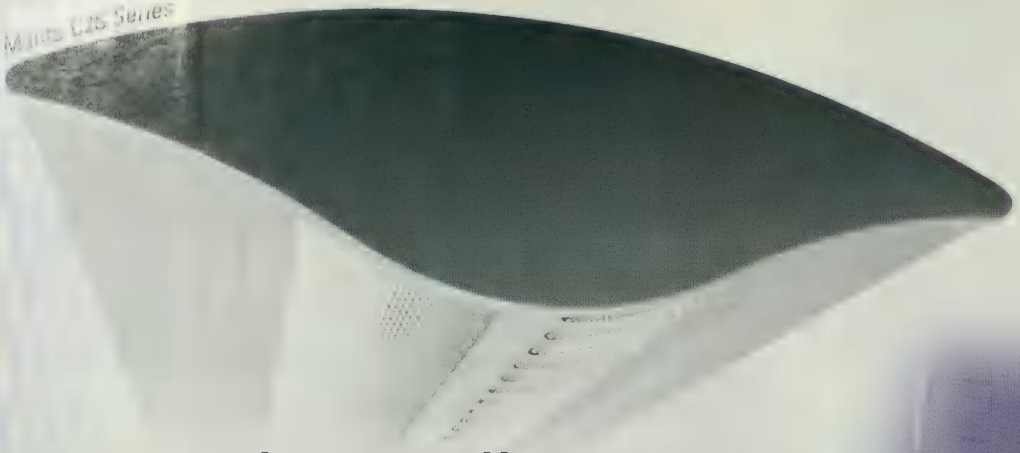
Interior Design Firm - *Baggot & Bak, Ltd.*
Location - *Delaware County Courthouse / Media, Pa.*
Project Paint Colors - *custom colors*
Products - *ProMar® 200 latex flat and semi-gloss*

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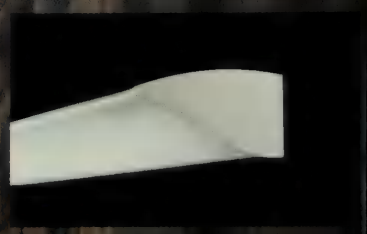
Perforated aluminum body and louvres balance the brightness of the luminaire with the illuminated ceiling, when hung 18 to 24 inches below it. The result? Minimal glare on computer terminals.

With on-center spacing from eight to fourteen feet, Manta allows you to choose a range of downlighting levels depending on furniture systems and ceiling heights. Wall fixtures for offices, corridors, public washrooms, and information centers can complement the pendant luminaries.

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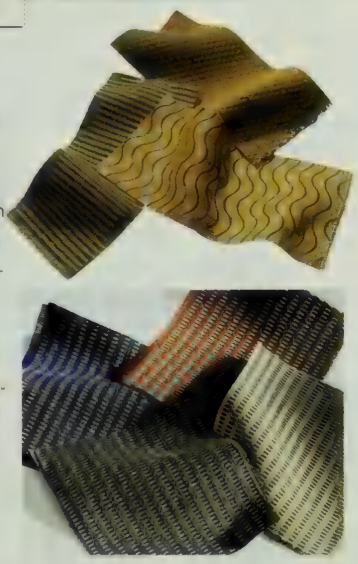
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PRODUCT BRIEFS

Waste not, want not



he William McDonough Collection II is e first commercial upholstery fabric to lly disclose its contents and the pro- uction process involved. The fabric's restuffs and process chemicals contain substance known to be carcinogenic, utagenic, or bioaccumulative, or to dis- pt human/animal endocrine systems. he material's wool and ramie are ganic, natural materials, and when its eful life as upholstery is over, the prod- t can be composted with no negative vironmental impact. The collection nsists of three styles available in 45 lorways. 212/886-8141. DesignTex, ew York City. **CIRCLE 209**

Lavatory set



anufactured of solid brass, Concinnity's w Savoy lavatory set is available in even finishes: polished and satin brass, olished and satin chrome, polished nd satin nickel, and polished 24K gold. cording to the company, the Savoy set atures ceramic cartridge construction r trouble-free, no-drip operation. Savoy available with coordinating tub and ower sets and a complete line of wall- ounted accessories. 516/293-7272. W. Industries, Melville, N.Y. **CIRCLE 210**

Sheer shading

he light-filtering quality of SheerWeave terior shading fabrics from Phifer Wire oducts helps reduce the fading of fur- shings while providing daytime privacy nd minimizing annoying glare. The flame-resistant fabrics filter out heat, helping to conserve energy and save money in commercial and residential projects by lowering interior tempera- tures. 800/847-3007. Phifer Wire Prod- ucts, Inc., Tuscaloosa, Ala. **CIRCLE 211**



▼ Solid surfacing for walls

Chicago's Field Museum of Natural History remodeled 11 public restrooms, using wall panels made of Swanstone reinforced solid surfacing. Sections of ¼-inch-thick Swanstone, up to 10 feet tall, are mounted throughout the restrooms in contrasting colors. Swan- stone's ease of maintenance makes it appropriate for wainscotting and elevator paneling in high-traffic applications, countertop panels, and furniture tops. 314/231-8148. The Swan Corporation, St. Louis. **CIRCLE 212**



▼ Aluminum makes the grade

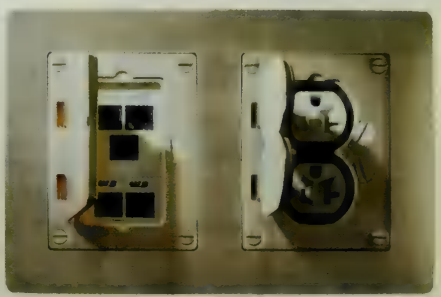
After more than four years in service, the Alucobond Material selected for Chaska High School, in Chaska, Minne- sota, remains a focal point for the school. Alucobond Material is an aluminum composite consisting of two sheets of .020-inch aluminum bonded to a ther- maplastic core. The 4mm Alucobond Material was used for fascia, soffit, and column covers and was applied with a rout-and-return clip system. 314/878- 2303. Alusuisse Composites, Inc., St. Louis. **CIRCLE 213**





► Underfloor duct system

The Walkerduct Pro Series underfloor duct system from The Wiremold Company has been re- designed to provide space for fiber loop storage within the preset and to accommodate the grad- ual cable bend radius recommended by cable manufacturers. The Pro Series is the only under- floor system to offer more than one meter of cable loop storage in the preset. 800/621-0049. The Wiremold Company, Bristol, Conn. **CIRCLE 214**



PRODUCT BRIEFS

▼ Good walls=good neighbors
Anchor Diamond retaining wall blocks, from Anchor Wall Systems, are available in straight face and beveled three-way face styles for use in residential and commercial landscaping projects. Anchor Diamond blocks are suitable for walls up to 3½ feet high, allowing easy design of straight or curved retaining walls and terraces. 800/473-4452. Anchor Wall Systems, Minnetonka, Minn. **CIRCLE 215**



▼ Draining deck boards
Over the years, ordinary deck boards tend to cup and hold water, promoting twisting and warping. Supreme Decking boards are made by remilling flat two-by-six boards with a smooth ⅛-inch crown that naturally drains water from the surface. The decking features relief cuts on the bottom to minimize cupping and warping. 800/532-1323. Supreme Decking, Herndon, Va. **CIRCLE 217**





▲ Portable storage
Crossings Project Tubs, from Haworth, enhance associative memory by allowing users to organize their work by project or topic in the same type of storage media. A handy tote, the Crossings tub gives the added benefit of portability. 800/344-2600. Haworth, Inc., Holland, Mich. **CIRCLE 220**



▼ Recycled vinyl flooring
Bonar Floors introduces Polyflor Resola, a recycled vinyl flooring product that features a high vinyl content and closed surface that provides a good resistance to scratching in health-care and educational facilities. The flooring features nondirectional styling in 10 colorways and can be welded at the seams to create continuous, impervious surfaces. 800/852-8292. Polyflor, Newnan, Ga. **CIRCLE 216**

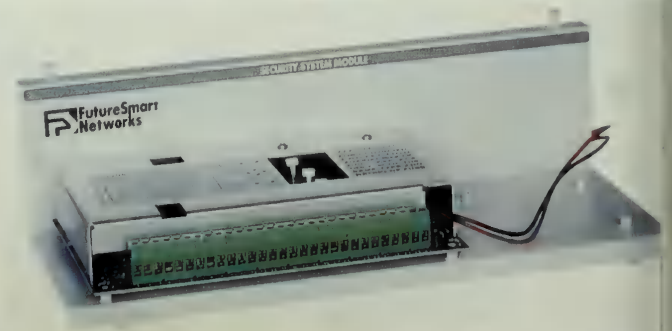


▼ New nylon fabrics
Three new fabrics from Pollack & Associates—Cutting Corners, Line Up, and Tilt-A-Whirl—are woven of BASF Zeftron 200 solution dyed nylon. Appropriate for contract installations, especially health care and hospitality, all three fabrics are offered in six coordinating colorways. 212/627-7766. Pollack & Associates, New York City. **CIRCLE 218**



▲ New solid surfacing colors
DuPont Corian's Lustra Collection of solid surfacing material features four earthy new colors. Lustra's shimmer comes from millions of mirrorlike, micro-thin flakes within the translucent acrylic polymer. In addition, two new colors have been added to the Magna and Summit color families. 800/4CORIAN. DuPont Corian, Wilmington, Del. **CIRCLE 221**

► Safe and sound
IES introduces a new security system that comes with an eight-zone controller, an LCD or LED keypad, contacts, a siren, a seven-hour battery, and a motion detector. The system provides a common installation point for pulling telephone, coax, and security wires as well as providing one panel that handles all low-voltage and security needs. 801/263-1300. IES, Inc., Murray, Utah. **CIRCLE 219**



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- Other workers may be conscientious, detail oriented, punctual and take pride in their work.
- Other workers may take necessary measures to always insure personal safety of all workers on any given project.



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- NECA/IBEW workers are conscientious, detail oriented, punctual and take pride in their work.
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BRIEFS

Protection from above

The exterior face sheets from Skywall Translucent Systems feature the surface protection of Tedlar from DuPont. Tedlar protects Skywall products from weather damage, adds extra protection against discoloration, offers resistance to UV degradation, and resists greases, oils, acid rain, and mildew. Most airborne dirt does not adhere to the surface. 800/259-7941. Skywall Translucent Systems, Terrell, Tex. **CIRCLE 222**





Smooth sailing

The 2000 Handrail, from IPC Door and Wall Protection Systems, addresses the needs of both wheelchair users and people with arthritic hands. The wide, oval-shaped 2000 Handrail provides superior graspability, a comfortable gripping surface, and forearm support. The ergonomically inspired surface of the 2000 Handrail increases mobility and independence. 800/222-5556. InPro Corporation, Muskegon, Wis. **CIRCLE 223**



Colorants for faux finishes

Arabesque, a wall and furniture faux finisher in Southern Pines, North Carolina, was the first to launch a line of furniture featuring the unusual Unipearl colorants from Creanova. While in the past designers had to purchase the desired materials from an art store and mix them on their own, they now have the option of incorporating Unipearl into paint, offering an endless color spectrum. Unipearl colorants are appropriate for residential and commercial applications, including spas, hotels, restaurants, and offices. 732/560-6979. Creanova, Inc., Somerset, N.J. **CIRCLE 224**

Can you afford Value Engineering?

Don't risk lawsuits and the costs of restoration work just because someone down the line wanted to save a couple bucks. Do it right the first time with the only ASTM-tested cavity drainage material—Mortar Net™.

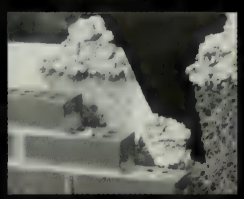
Mortar Net Drainage System prevents the cavity from becoming clogged with mortar droppings. Due to its patented dovetail shape and 90% open mesh, Mortar Net allows water to maintain a path of exit to the weeps, preventing damage caused by mortar dumming and the blockage of weep holes.

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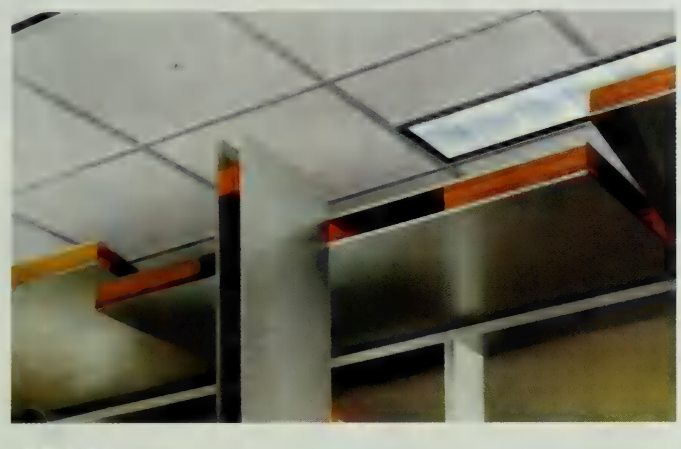
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PRODUCT BRIEFS

Colorful bricks

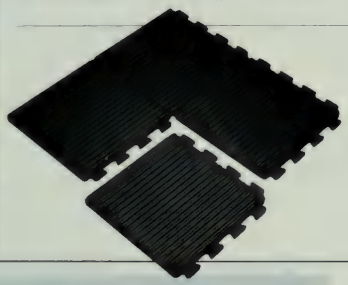
obinson Brick Company has introduced line of paving bricks that complement ie company's Designer Classics and ew Traditions colors of face brick. obinson Pavers are available in full gar- en size, measuring 7⅝ by 3⅛ by 2¼ ches. A variety of patterns can be cre- ed with the pavers, which can also be mbled together for a reclaimed brick ok. Colors include a brilliant red, a eep red, and a deep plum. 303/783- 000. Robinson Brick Company, Denver. RCLE 225





▲ Ceiling panels

Radar ClimaPlus Ceiling Panels, from USG Interiors, feature a nondirectional pattern and nonsag technology. The panels are available in a variety of sizes and designs. A 15-year warranty is offered when the panels are used in conjunction with USG's Donn Suspension System. 800/USG-4YOU. USG Interiors Inc., Chicago. **CIRCLE 226**



◄ Interlocking floor mats

The Pawling Corporation's EM-205 Modular Hi-Rib interlocking rubber floor mats provide slip resistance and easy clean-up for a range of building entryway applications. 914/658-8393. Pawling Corp., Wassaic, N.Y. **CIRCLE 227**

▼ Modular kitchen system

Mobilo, a new furniture system from Becker Zeyko Kitchens, is available in varying heights, widths, and depths. Mobilo's cabinet boxes are crafted from solid wood with a lacquered beech-veneer finish. A variety of front panel styles can be specified. 510/865-1616. Becker Zeyko, Alameda, Calif. **CIRCLE 228**





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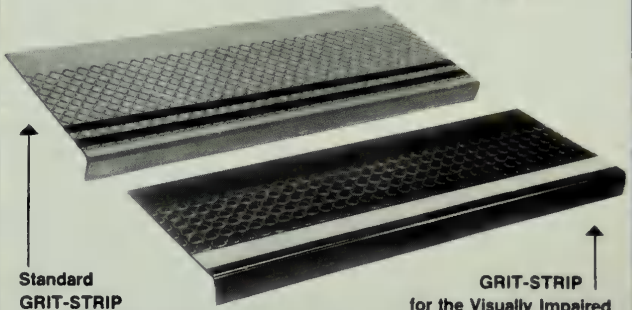
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International Brotherhood of Electrical Workers • National Electrical Contractors Association
National Joint Apprenticeship Training Committee

CIRCLE 61 ON INQUIRY CARD

PRODUCT LITERATURE

U.S.A. handbook

The Residential and Small Commercial Project Handbook helps home and small business owners select an architect and understand the design and construction process. 617/951-1433, x221. Boston Society of Architects, Boston. CIRCLE 229

Door and wall protection

C Door and Wall Protection Systems' new catalog features the company's complete line of products in a variety of colors and patterns. 800/222-5556. C Door and Wall Protection Systems, Muskegon, Wis. CIRCLE 230

Universal design

Leviton's Universal Design Series brochure features products that enhance accessibility, convenience, and home security for all ages and abilities. 800/323-8920. Leviton Manufacturing Co., Inc., Little Neck, N.Y. CIRCLE 231

Engineered wood

"How to Build a Storybook Ending into the House of Your Dreams" explains the advantages of using engineered wood systems in home construction. 503/721-2769. Willamette Industries, Inc., Portland, Ore. CIRCLE 232

Aluminum recycling

The newly revised Aluminum Recycling Casebook offers information on the history, markets, processes, regulations, and technical issues related to the material's recycling. 202/862-5160. The Aluminum Association, Washington, D.C. CIRCLE 233

Air filtration

Farr Company's fully updated products catalog provides an overview of the company's air-filtration systems and equipment. 800/333-7320. Farr Company, El Segundo, Calif. CIRCLE 234

Outdoor lighting

The SPJ Lighting Inc. catalog features classic solid brass outdoor lighting, including landscape lighting and custom designs. 800/469-3637. SPJ Lighting Inc., Northbridge, Calif. CIRCLE 235



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PRODUCT LITERATURE

Windows and doors

The 1999 Residential Product Guide for Professionals, from Andersen, focuses on technical details about the company's doors and windows for both the residential new construction and remodeling markets. 800/426-4261. The Andersen Corporation, Bayport, Minn. **CIRCLE 236**

Architectural titanium

TIMET's new brochure features representative photographs and information about the attributes of architectural titanium. 785/842-2299. TIMET, Lawrence, Kans. **CIRCLE 237**

Ceramic tile

The new 1999 United States Ceramic Tile Company catalog features a quick reference guide to industry associations, new installation photographs, and new product introductions. 330/866-5531. United States Ceramic Tile Company, East Sparta, Ohio. **CIRCLE 238**

Track lighting

Hubbell Lighting's new brochure presents designers with information and tools to produce an effective lighting layout with one- or two-circuit tracks. 800/270-3737. Hubbell Lighting, Inc., Orange, Conn. **CIRCLE 239**

Kitchen ranges

Thermador Corporation's newest catalog of kitchen ranges features recently introduced products, the existing line, and the latest specifications. 714/901-6600. Thermador Corporation, Huntington Beach, Calif. **CIRCLE 240**

Elevator directory

The Elevator World Source is the only international directory of industry manufacturers, suppliers, consultants, associations, and publications. 800/730-5093. Elevator World, Inc., Mobile, Ala. **CIRCLE 241**

Handrails and railings

Robern, Inc. offers new four-color literature for its architectural ornamental handrails and railings. 215/826-9800. Robern Inc., Bristol, Pa. **CIRCLE 242**



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JUSTICE FOR ALL *continued from page 107*

technologies were to be as unobtrusive and transparent as possible. Courtrooms, they said, must in no way resemble video arcades with paneling. James M. Rosenbaum, Minneapolis's federal district court judge, said that "any technology-driven attempt to make the courtroom look like something other than a courtroom" would be avoided by him and his colleagues.

While there are constitutional deterrents to what is otherwise technologically possible, there's no doubt that technology is a thorny design issue. "In five years, the use of video-conferencing, video-arraignment, and remote depositions will be widely accepted in the court. The use of sophisticated evidence display will be commonplace," predicts Michael A. Griebel, senior court planner for HLM, Inc., in Charlotte, North Carolina. "For architects, this will mean more stringent lighting and acoustical requirements, new concerns about sightlines and viewing, and the proliferation of electrical, telecommunication, and audio/video system requirements."

Meanwhile, technology is flooding into other portions of the court building. Case management and scheduling systems, electronic document imaging and records handling, legal research, personal productivity tools—all these are calling more attention to office and administrative support spaces that were, in the past, treated like architectural afterthoughts.

The court clerk's office, for instance, was routinely located in a readily accessible, high-traffic area for the convenience of the public. But treating that space as a high-performance, technology-intensive office environment now means that it must be appropriately wired and designed to accommodate video displays and other digital technologies. This requirement is made more complex by the fact that while the architecture may last for decades, the technology is likely to change every 18 months.

Looking ahead

The immediate future of federal courthouses lies in a long list of approved new construction projects in the pipeline. But the real action in the courts-design arena will be at the state level—fertile ground for new thinking and new work. In California, for example, a comprehensive assessment of the inventory of buildings, all 397 of them, that comprise the physical infrastructure of the state courts system is under way. The results will determine what to rehabilitate, upgrade, or replace altogether.

Architects are still in the early stages of learning how emerging technologies integrated within traditional floor plans will affect staffing and space needs. This spring, the USAOC is expected to issue a court technology manual, which will address courtroom technology issues more completely.

The future also holds new design questions. For example, how will the mounting volume and complexity of caseloads affect courts' design? And what of the trend toward integrated justice systems, such as the La Crosse County Law Enforcement Center, where police, emergency and correctional functions are consolidated within the same building? Courts designers can anticipate more intensely collaborative work with allied professionals, especially the engineering community and specialty consultants, as well as with justice system professionals. The familial issues of "solemnity," "dignity," and "civic presence" will endure, but they will require a synthesis of expertise. ■



ADVERTISEMENT

A Tale of Two Water Closet Technologies



by Joseph M. Smaul, P.E.

It was while working as the head of plumbing engineering and overseeing the HVAC for hotels on the East Coast that I became involved with pressurized water closets. We just finished a 600-room facility and we were preparing to go to work on the next 400-room project, when a letter crossed my desk from the major fixture manufacturer for the new project. This fixture manufacturer — who was different from the one we used on the 600-room hotel — suggested that we do not use gravity-flushing closets in the hotel we were engineering. Instead, the manufacturer recommended his line of pressure-assist water closets for a variety of reasons.

The question immediately arose in my mind: why? If pressure-assist is the standard for hotels, why didn't the other manufacturer for the 600-room hotel recommend it?

I was assigned the task by the principals of my company to find out what this was all about, so I called the head of maintenance engineering at the 600-room hotel where we had specified and had 1.6 gravity-flush water closets installed. I asked him how these gravity units were working out.

I still recall how matter-of-fact he was when he calmly said, "I'm really glad you called. We get about 75 to 100 calls a week to unclog these toilets. It has become pretty routine now. I think ever since they limited the water usage to 1.6 gallons per flush, that's when the problems started. We leave plungers right in the rooms now, so we don't have to be carrying them down the halls in front of the guests. I guess there isn't much we can do about it!"

I was looking at the other manufacturer's letter that recommended pressure toilets on my new project as I listened to his comments. He continued, saying, "We are experiencing tremendous guest dissatisfaction over this clogging, double flushing, and poor performance. But say, I've heard of something that might be worth investigating as long as I have you on the phone. I think they call it pressure toilets. Can you find out if there's anything to this? I've called the fixture manufacturer, too, and they said they are looking into the situation for us. There might not be anything we can do except live with it."

I said I would see what I could do, and hung up the phone. I then called the original manufacturer we used at the 600-room hotel. It turned out that he was already well aware of the clogging problems at the hotel...that he was in the process of re-engineering his fixture, and that he would step up and resolve the situation for the maintenance engineer's and my own satisfaction.

I decided I needed more information before I made our final recommendation between gravity and pressure-assist, so I researched further by calling maintenance engineers around Las Vegas hotels. I found out that they were either installing pressure-assist, or replacing gravity with pressure-assist. One of the casinos actually took out ALL of their gravity toilets and replaced them with pressure-assist! Since they started using pressure, they were able to reduce their service factor on toilets to zero.

I asked around some more, and I heard from people who bought new homes that were disgusted with the 1.6 gravity because of flushing two or three times. Then I remembered that my own relative had a closet off the den with 1.6 gravity that even the kids were not allowed to use because of performance problems. They actually have to go upstairs to the second level toilets.

Well, all of this made our decision easy, and we recommended pressure-assist toilets.

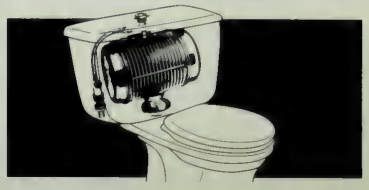
But I also came upon something from my study that was truly amazing: it didn't matter which fixture manufacturer was specified for pressure-assist toilets. All the manufacturers were using the same pressure-assist technology in their pressure-assist fixtures. That technology? Sloan's *FLUSHMATE*® pressure-assist operating system.

Of course, you can't make a statement that for all conditions, pressure-assist works best. However, if performance is the criteria, fixtures with Sloan's *FLUSHMATE*® pressure-assist operating system do, in fact, work the best.



About Joseph Smaul, P.E.

With 44 years of experience, including the first 13 as a pipefitter, Joe Smaul has done it all — from running his own mechanical design contracting company for 16 years to doing consulting engineering for some of the most well-known engineering firms. He has patented energy conservation systems in office systems, and is a member of and frequent speaker at major trade associations in the United States. He is currently doing engineering work at Marvin Waxman Consulting Engineers in Glenside, PA. To contact, or for more information on Sloan FLUSHMATE, call: 1-800-875-9116.



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CIRCLE 65 ON INQUIRY CARD

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

ANSWERS

Questions appear on page 138. To receive CES credits, fill in the education reporting form below or at our Web site (www.archrecord.com).

1. At the Goodwill Games complex, a high-efficiency system designed especially for pool buildings was used to reduce humidity. Water in the air condenses on coils inside units located near the ceiling. Heat recovered during the condensation process is circulated to the basement and run through a heat exchanger to preheat the pool water. In addition, condensation was reduced by using round steel sections for building elements. These allow better ventilation than the flat surfaces of steel angles and I sections and discourage the settling of dust, which attracts and holds moisture.

2. Good pool design can help swimmers achieve more speed by decreasing turbulence in the water. The lanes should be as wide as possible to minimize interference from adjacent swimmers' waves. A pool should also be relatively deep, a minimum of two meters, to keep turbulence from the bottom of the pool from slowing swimmers down. In addition, the design should allow for water to be injected from the bottom of the pool and dispersed equally in all directions to prevent excessive wave action. Gutters should be designed so that water will not splash back into the pool and slow the swimmers, especially those who are in the end lanes. Gutters that are deep enough to accommodate the volume of water displaced when racers dive into the pool will also help decrease turbulence.

3. Pools can be made with braced, heavy steel walls installed around the perimeter of a concrete floor slab; with formed-in-place concrete; or with gunite. The latter material—which consists of concrete sprayed at high pressure directly onto the earth over a reinforcing steel cage—requires little formwork. In the Goodwill Games building, gunite was economical because the soil on the site had a high concentration of naturally compacted sand. This condition allowed the contractor to dig a cavity for the pool and the accompanying utility trenches with great accuracy and to spray the concrete directly onto the earthen walls.

4. To allow more seating capacity for competitions and other special events, the building was designed to be opened up for the installation of temporary seating. Glass doors between the concrete support buttresses slide to one side, and a series of custom-designed metal wall panels above the doors can be pivoted upward. This leaves an opening 30 feet wide by 19 feet high where bleachers can be set up. Instead of choosing to design the complex for full capacity—which would occur only occasionally—the architect invested the construction budget in the most up-to-date swimming and diving facilities.

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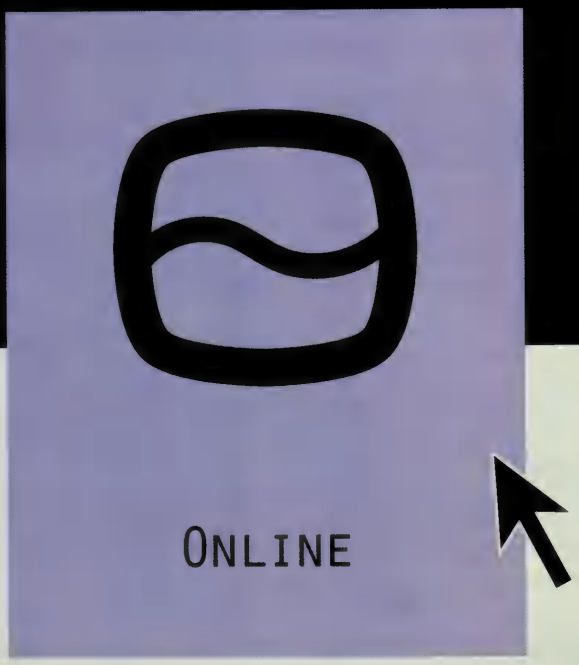
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TIME FOR THE MILLENNIUM *continued from page 77*

The MITRE Corporation, a nonprofit firm that does research and development for several federal agencies, has outlined an extensive plan for developing alternative strategies in case of system failures. Some of these contingencies include having good old-fashioned paper copies of key data on hand and making manual methods of accounting, drawing, and record-keeping available.

Stocking up on noncomputer necessities is also prudent. Ritger is advising his firm to order ordinary office supplies, business accessories, and even new furniture well before December 1999. "I don't want to count on some vendor's computer-based inventory system to be Y2K-compliant," he says.

How to prepare

The DPIC Companies, a trade group of professional liability insurance companies based in Monterey, California, offers a checklist of preparation steps. But first, architects must recognize that the Y2K bug should not be construed as a technical problem to be handled by low-level staff. It is a management problem capable of affecting the entire business and, therefore, requires commitment, attention, and funding from the top. Once that is understood, the architect should do the following:

Assess internal risk. Both hardware and software systems must be evaluated. Even late-model PCs may have a problem, though Macintoshes will not because their internal clocks treat years as four-digit numbers. Any system that computes dates, such as database and financial systems, will be vulnerable. Particular attention should be paid to custom-designed software and home-grown spreadsheets.

FIRMS THAT HAVEN'T STARTED TO PREPARE FOR Y2K SHOULD MOVE IMMEDIATELY INTO TRIAGE MODE AND DEVELOP A CONTINGENCY PLAN FOR FAILURES, SUCH AS SYSTEM CRASHES AND BAD DATA.

Assess external risk. Will everyone with whom the firm exchanges data, including clients, consultants, business partners, and public agencies, be Y2K-ready? Organize a plan for remediation. This extra work may lower firm productivity for months or even years.

Implement the plan. Most hardware and software vendors are developing upgrades or patches that can be installed now. Nonetheless, firms should test, upgrade, and retest all their hardware, operating systems, network systems, and application software. Document the testing processes so that you will be able to demonstrate diligence if called upon to do so.

Discuss the problem with business partners. Explain the firm's strategy toward Y2K compliance and inquire about theirs.

Incorporate Y2K into client agreements. Consult with legal counsel regarding statements to the client limiting the firm's Y2K-related liability. ■

CALL FOR ENTRIES

RECORD INTERIORS 1999

The editors of ARCHITECTURAL RECORD announce the 30th annual RECORD INTERIORS awards program. This program is open to any registered architect; work previously published in other national design magazines is disqualified. Of particular interest are projects that incorporate innovative programs, building technologies, and use of materials. There is an entry fee of $50 per submission; please make checks payable to ARCHITECTURAL RECORD. Submissions must also include plan(s), photographs (transparencies, slides, or prints), and a brief project description bound firmly in an 8½-by-11-inch folder—and be postmarked no later than April 30, 1999. Winning entries will be featured in the 1999 RECORD INTERIORS. Other submissions will either be returned or scheduled for a future issue. If you would like your entry returned, please include a self-addressed envelope with appropriate postage.

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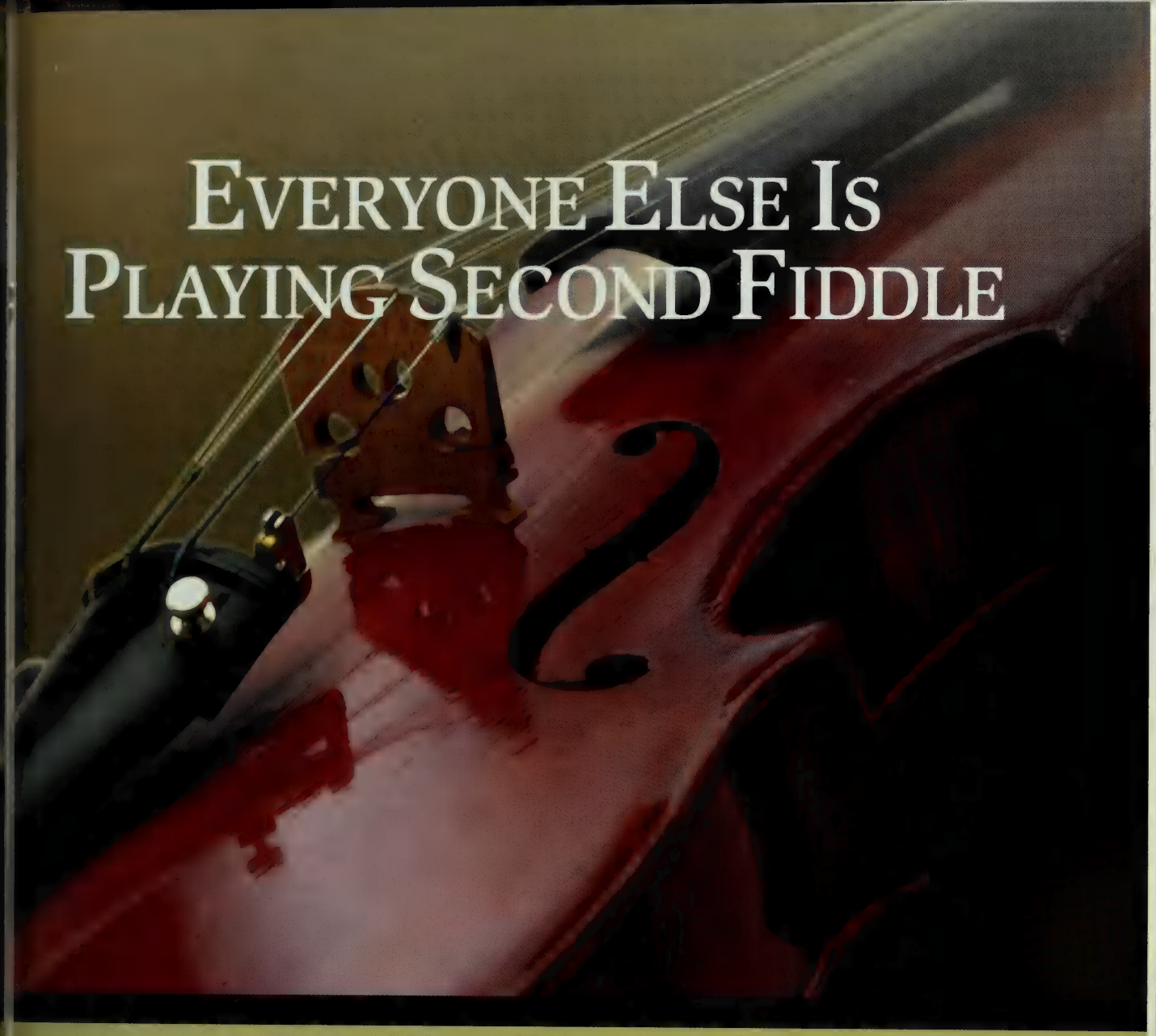
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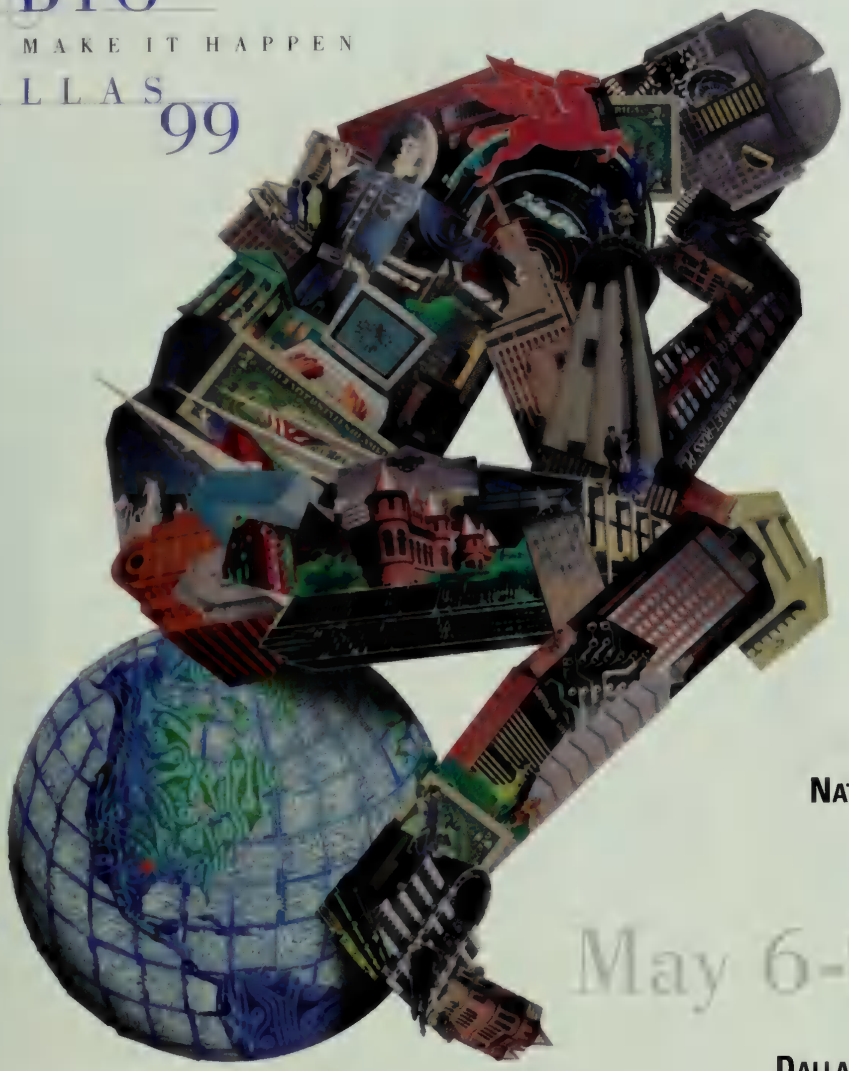
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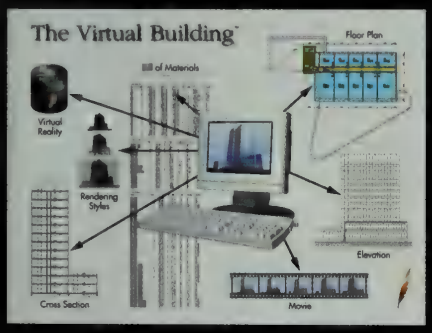
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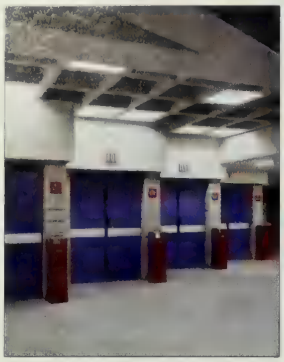
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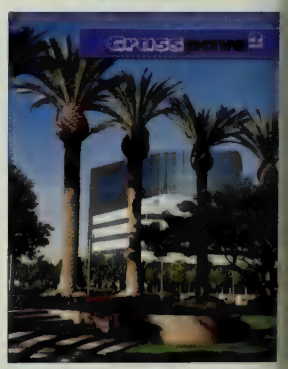


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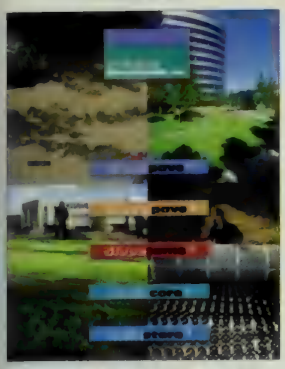
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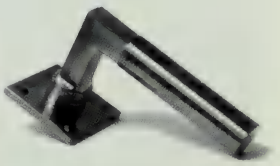


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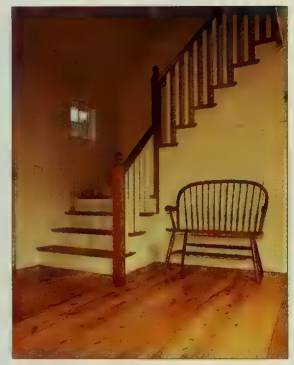


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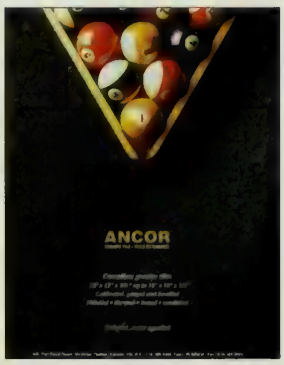


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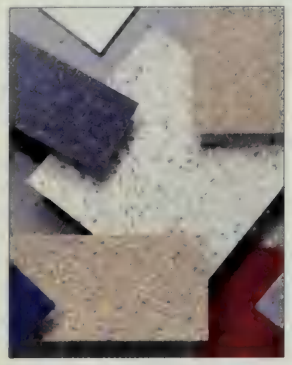


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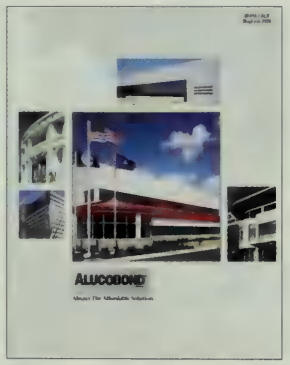


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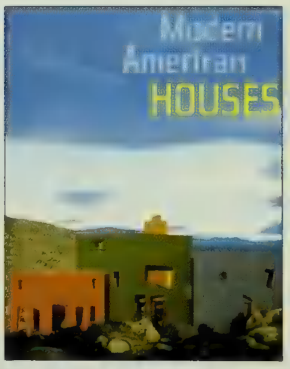


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THE FUTURE The economics of outdoor advertising and a new printing technology may change how buildings make money.

BY DAVID E. BROWN



When asked to imagine an urban distopia, many people will immediately think of *Blade Runner.* Indeed, the 1982 film has become a touchstone of millennial fears, depicting a future that is crowded, dank, and dangerous.

In watching the film today, a few things stand out. It's always raining. Pan Am still exists. Los Angeles has finally become dense. But one of the most memorable aspects of the cityscape is the advertising. It covers huge expanses, from the skins of low-flying blimps to entire sides of buildings—in fact, ads *are* the sides of buildings (photo right).

While most of *Blade Runner*'s imagined city is nowhere to be seen, the film's predictions of an advertised future were too conservative. In the past few years, advertisements both big and small have exploded into all corners of our world. From the back of supermarket receipts to buses to, yes, sides of buildings, every kind of space seems to be sponsored.

Times Square is a special case, of course, but it provides a glimpse of the economics of architecture-as-advertising today. One Times Square, the skyscraper once home to the New York Times, has been vacant for most of the last two decades. In 1997, though, it was sold for $110 million, a price that reflects not its rentable space (only the bottom floors are considered usable) but its value as what architect Bruce Fowle calls "an armature for signage": the building pulls in at least $7 million a year in rent for ads on its north side alone.

Rising on either side of this building-turned-billboard are visions of the future relationship between ads and architecture: 3 and 4 Times Square, two towers designed by Fowle's firm, Fox & Fowle Architects.

Four Times Square, nearing completion, incorporates advertising both superficially and structurally. Its base, Fowle notes, makes "a fairly subtle distinction between signage and architecture." Traditional, flat signs comprise most of its western facade, which meets the north side in a cylindrical structure meant to be a three-dimensional billboard; the cylinder will soon carry a sign for Nasdaq. At the top of the building, the four sides of its roof truss will be covered with 60-foot-square ads.

At 3 Times Square, Fowle says, ad space was even more important. "We had to really integrate [advertising] into the whole process." Signage takes up a similar amount of space at the base, and again there are ads on the roof. Most striking, though, are the swaths of the building's western exposure given over to ads (top). "What you'd think of as prime views," Fowle continues, "are covered with signs."

Not all of this is new, of course; painted ads on buildings go back to the 1800s. And Times Square has been covered with static and moving ads for the better part of the century. What is different now is the amount of space and money devoted to ads, as well as the technologies being bent to their service. In SoHo and other New York neighborhoods, ads printed on huge vinyl sheets have gone up on the sides of buildings—cheaper than real billboards, they can qualify as temporary signs for zoning regulations.

More exciting is an entirely new technology that promises to change not only advertising but perhaps printing itself. "Electronic ink," developed by MIT researcher Joe Jacobson and marketed by Cambridge, Massachusetts–based E Ink, was imagined as a replacement for printer's ink in books, magazines, and newspapers—realizing a two-decade-old dream of the "electronic book." One sheet of "electronic paper" could change repeatedly, keyed to signals broadcast or sent over the Internet, to contain a whole magazine or newspaper. And the pixels need not remain static; though refresh rates are slow now, full-motion video should be possible in the near future.



Electronic ink consists of many small, pigmented spheres, which, when exposed to an electrical field, change from dark to light or light to dark. It's a bit like an LCD display, but with important differences: the spheres are contained in a liquid carrier medium that can be applied with traditional printing processes to almost any material (paper, plastic, metal, glass), and it requires very little power to create an image and none to maintain it. A small microprocessor controls the image, which can, in turn, receive commands via a simple pager.

The first application of electronic ink will be (you guessed it) in advertising, not literature. By the end of the year, signage using E Ink technology should appear in retail stores such as JCPenney. Though the signs are just poster-sized for now, Lisa Merriam, the firm's marketing director, says "there's no technical limitations on how big they can get."

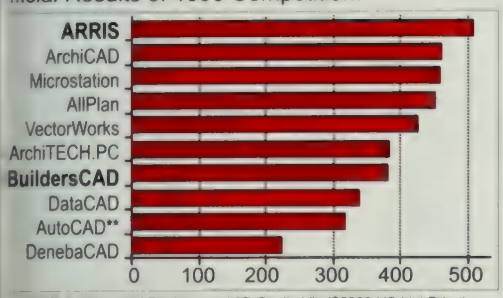
Which is to say, in-store signage is just the tip of a very big iceberg. In *Wired,* science writer Charles Platt has mused about E Ink's possibilities: "Taken to an extreme, you could paper an entire room with moving images." But why stop there? Taken to an extreme, you could paper a billboard, a wall, an entire building. A whole city block of moving images.

As lucrative as renting prime (and previously unprofitable) surfaces on building exteriors may be, the seemingly unstoppable force of advertising may have limits. In Times Square, Bruce Fowle says, signs are reaching "a saturation point. You really can't look at them there's too much visual chaos." Chaos that will only increase when ads everywhere start to move. ■

David E. Brown is a freelance writer living in Brooklyn.

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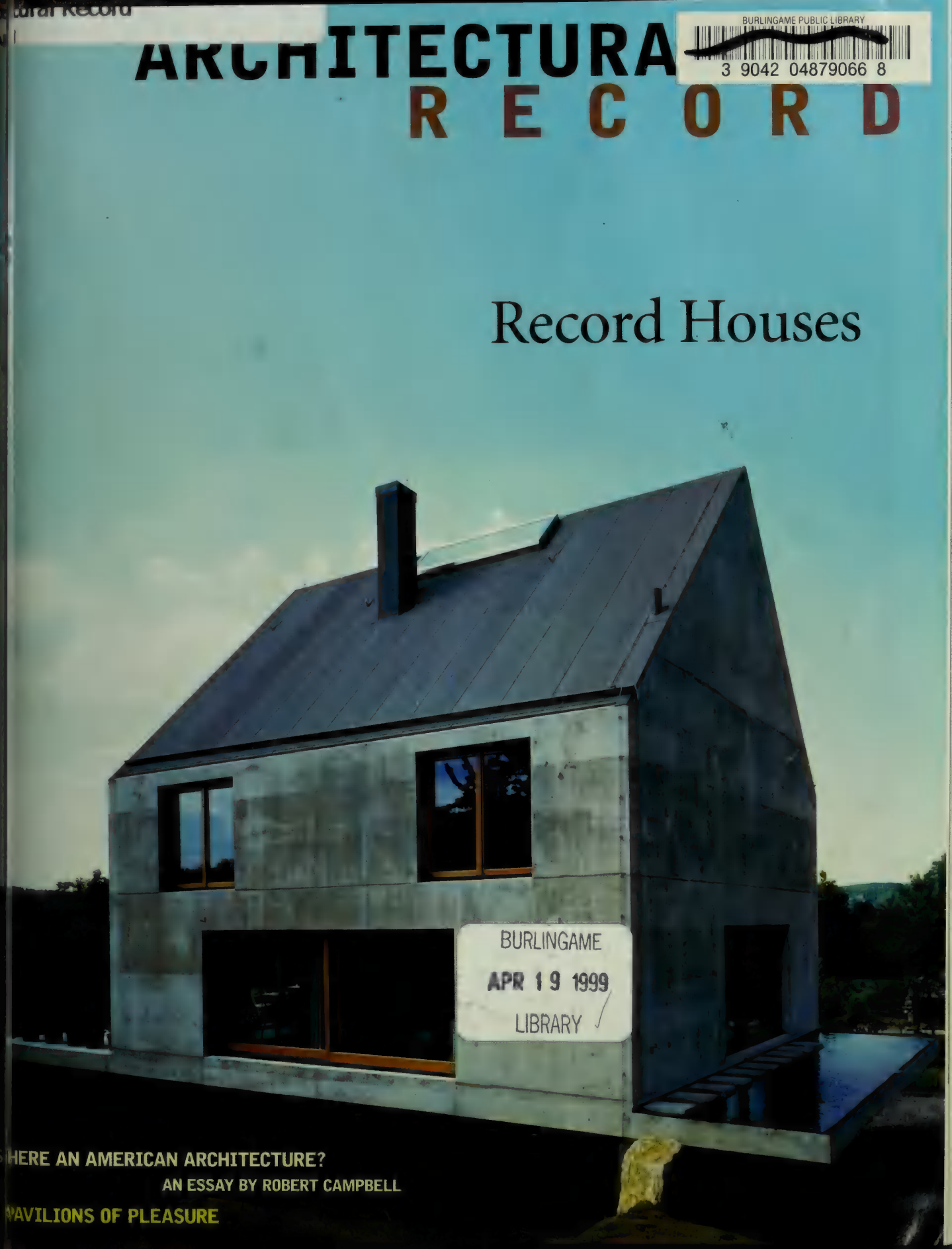
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WWW

*** You can find these on our Web site at www.archrecord.com, your source for a virtual tour of recently featured projects, an index of past articles, and more.**

Continuing Education: *The AIA/ARCHITECTURAL RECORD continuing education opportunity this month is "Siting Houses in Hard Places" (page 153). The education self-report form appears on page 182.*

Cover: *House at Leymen, Haut Rhine, France. Herzog & de Meuron. Photograph © Margherita Spiluttini.* **Above:** *The GucklHüpf, Mondsee, Austria. Hans Peter Wörndl. Photograph © Paul Ott. See page 82.*

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153 Siting Houses in Hard Places
Much of the best land has already been built on, leaving environmentally sensitive or otherwise difficult sites for architects to grapple with.

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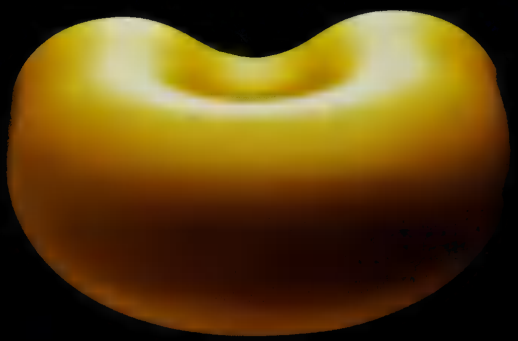
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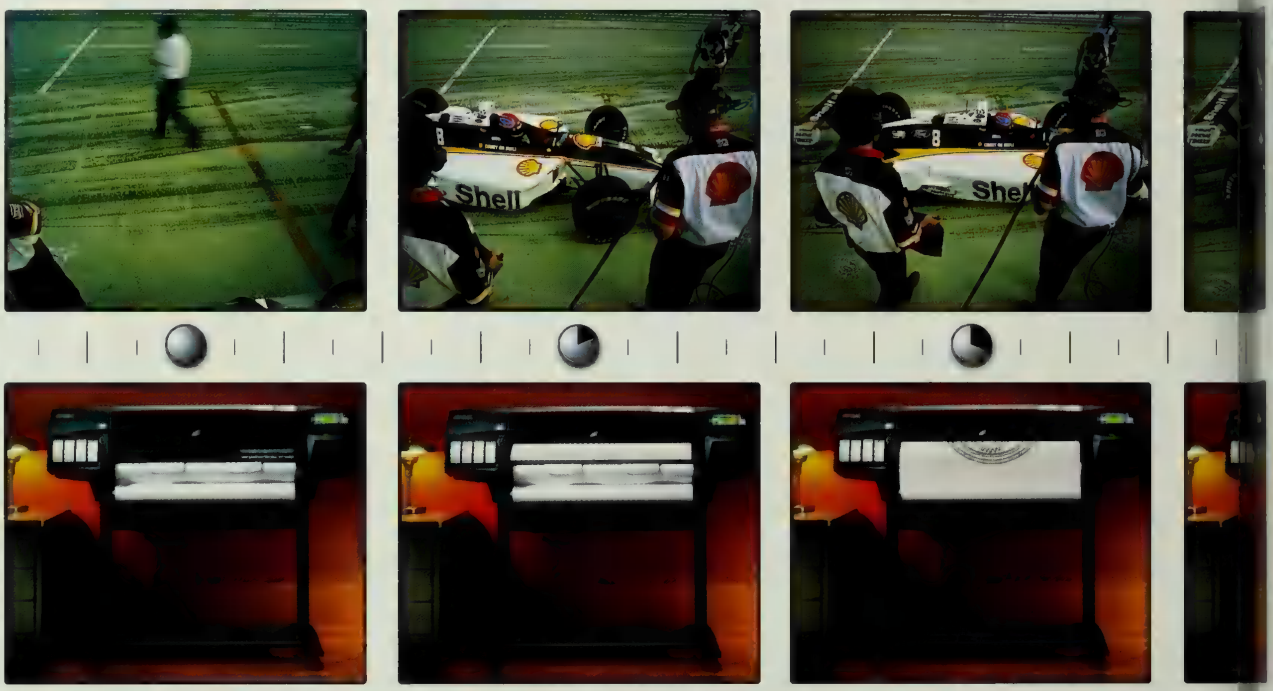
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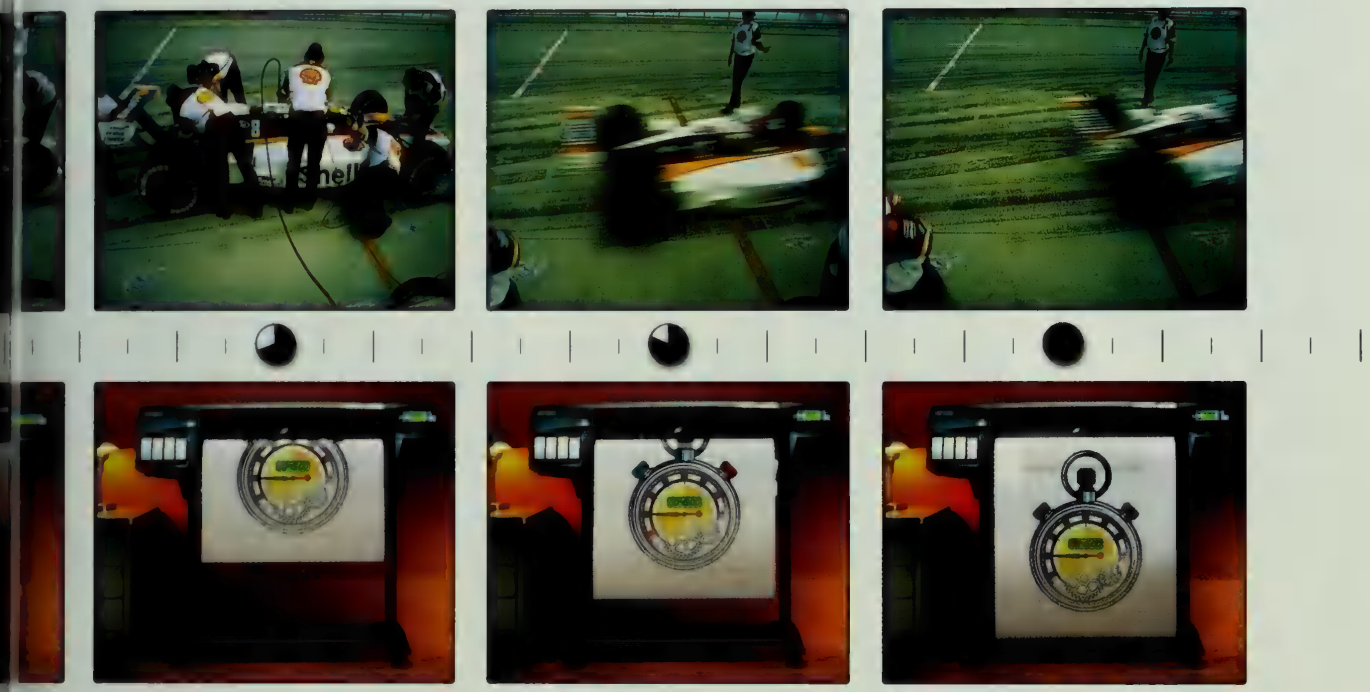
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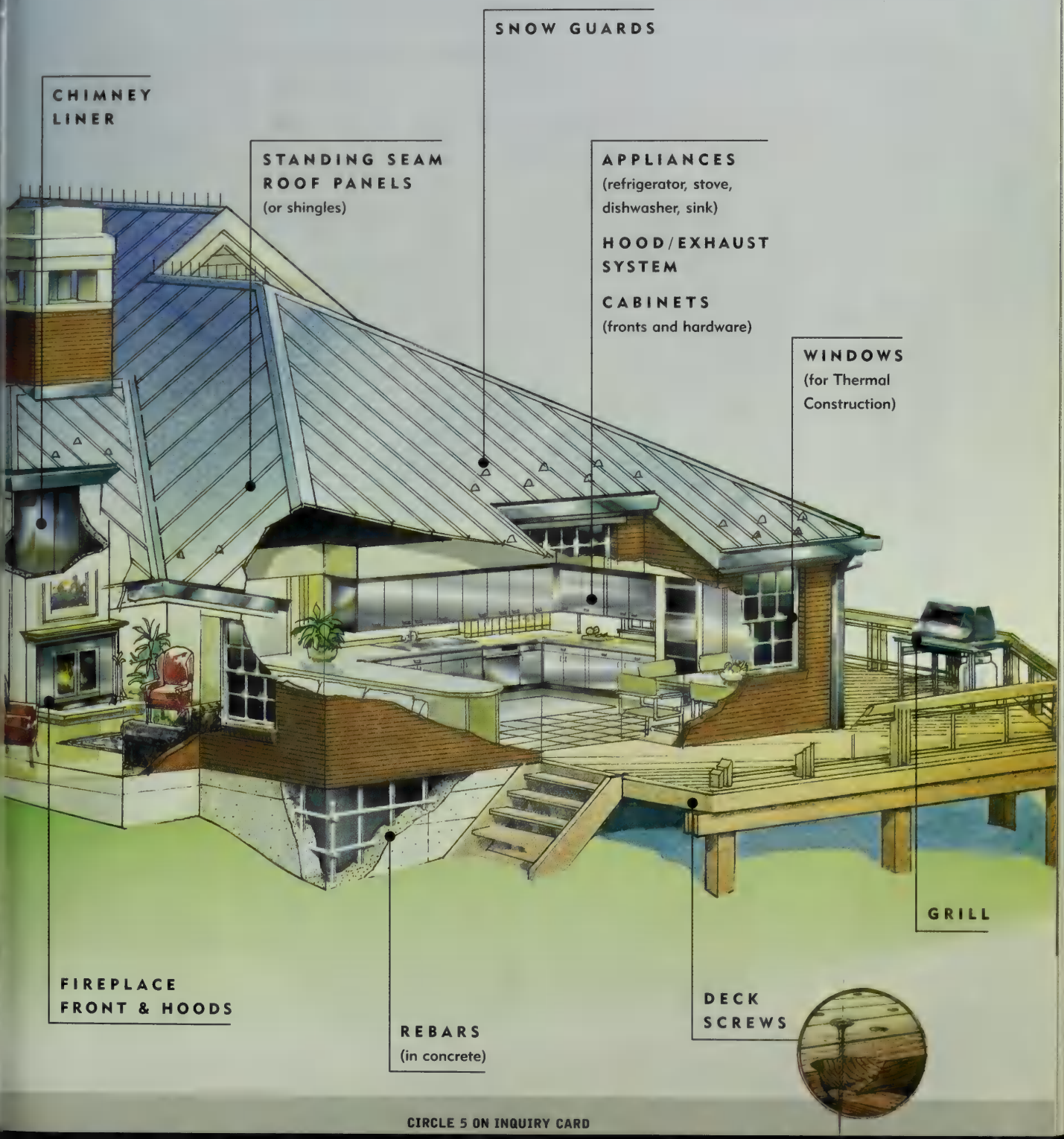
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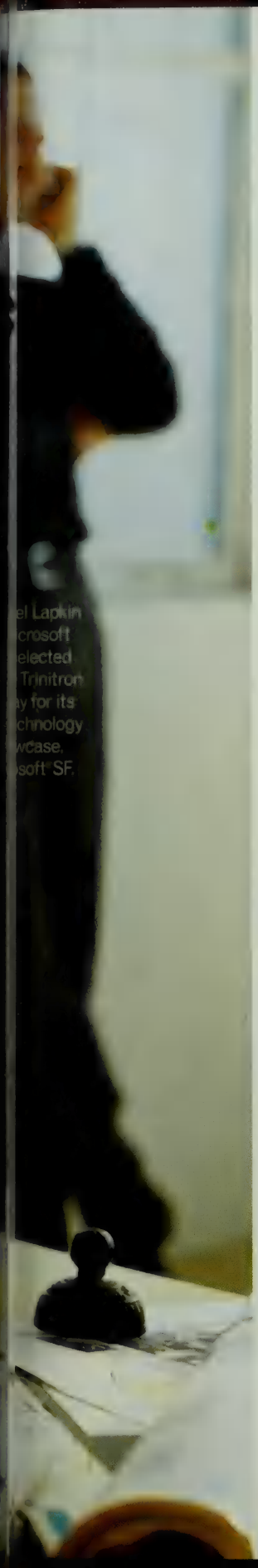
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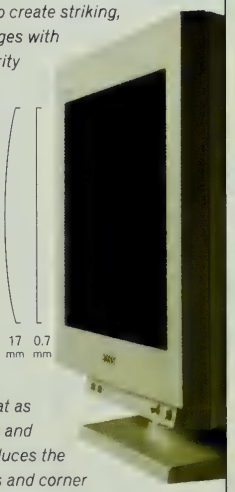
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When microsoftSF opens its doors this year, it will showcase its graphic professional software on the stunning new FD Trinitron displays from Sony. Located at Metreon in San Francisco, microsoftSF was created to provide a unique environment in which to interact with Microsoft's cutting-edge products. To present their graphics software in a dramatic and impactful manner, microsoftSF chose Sony's flattest, most accurate CRT screens ever, the new FD Trinitron displays.

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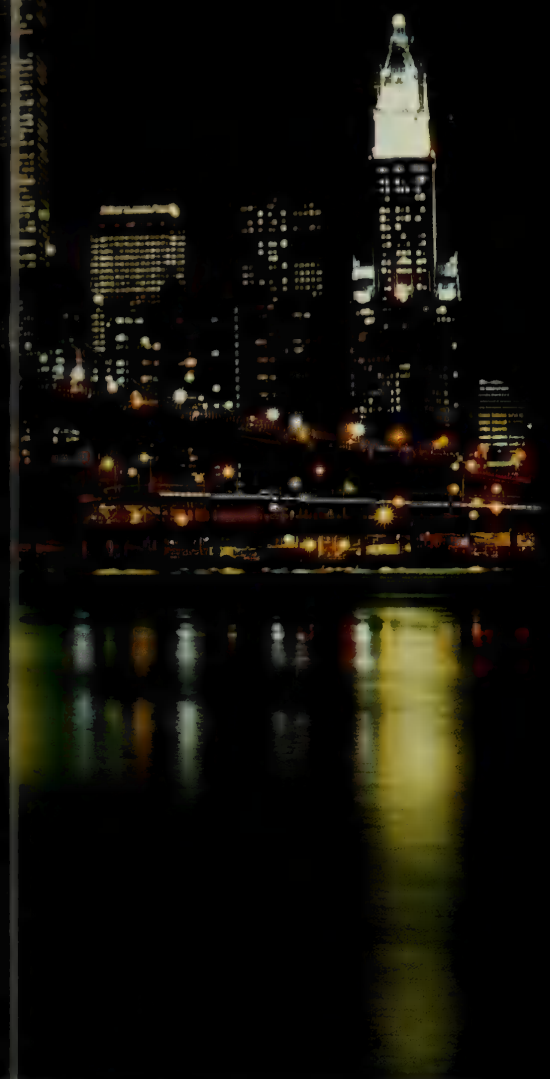


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EDITORIAL
The Most Valuable Asset

BY ROBERT IVY, FAIA

Not all marriages last. Chosen after a careful search, Mark Hurwitz served for only one year as the executive vice president and chief executive officer of the American Institute of Architects. The AIA's executive committee, with the approval of the board of directors, acted with appropriate dispatch to resolve unspecified issues surrounding his employment, citing contractual differences. The interim leadership of the seasoned Norman Koonce apparently has righted the ship, allowing the organization to continue pursuing its agenda for its members and all architects, including a national media campaign, continuing education, and lobbying efforts, until a permanent EVP/CEO can be named. Most members will never feel the difference.

Why should we care? The AIA's experience raises issues for all architects, members and nonmembers alike. First, they did their homework before they hired: the organization's process involved a competent and persistent search committee, a well-known executive search firm, careful review, and good follow-through. But despite their best intentions, the employment of this key figure did not work out.

How much more difficult is it for the typical architect to attract and retain talent? How much of your own time is spent agonizing over personnel matters? Hiring, that critical first step, can seem like a minefield. Every office has its unique employment war stories, from people landing in the wrong jobs to more troubling ethical dilemmas, such as the firm that suspected a new accountant of misrepresenting the company's finances. The contemporary office is faced with a scarcity of adequately trained employees—a challenge that may encourage cutting corners when a tempting new project architect seems ready to join the team. The candidate seems too good to be true, so we sometimes do not call the references, probe in conversation, or administer the test.

Hiring, however, merely begins the dance. Architects seem ill-equipped for managing what corporate America has labeled "human resources." In a professional culture that treasures collaboration and shared values, who wants to spend time on messy individual problems? We assign so much importance to our buildings and planning projects that we often postpone dealing with human concerns. We are sometimes shy in one-on-one meetings and uncomfortable with personal confrontation. Virtually no architectural education prepares us as managers of people; unless we have been lucky, there is neither theory nor practical help in our educational bank to draw from, forcing us to rely on the grab bag of experiences we have acquired along the way. As a result, we are sometimes blind to the needs of individuals and groups different from ourselves.

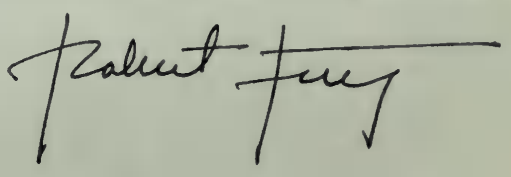
Most architects, however, want to be good managers and employers. Regardless of size or financial means, every firm can improve hiring practices and human-resource management with a strong commitment of time and money from leadership. It may involve coursework, consultants, or ongoing dialogue with peers; at the least, it requires the dedication of firm principals. The rules for obtaining and keeping a talented staff are straightforward and well publicized. A very select list follows:

Execute a plan for career development and training, with annual performance reviews of each employee.

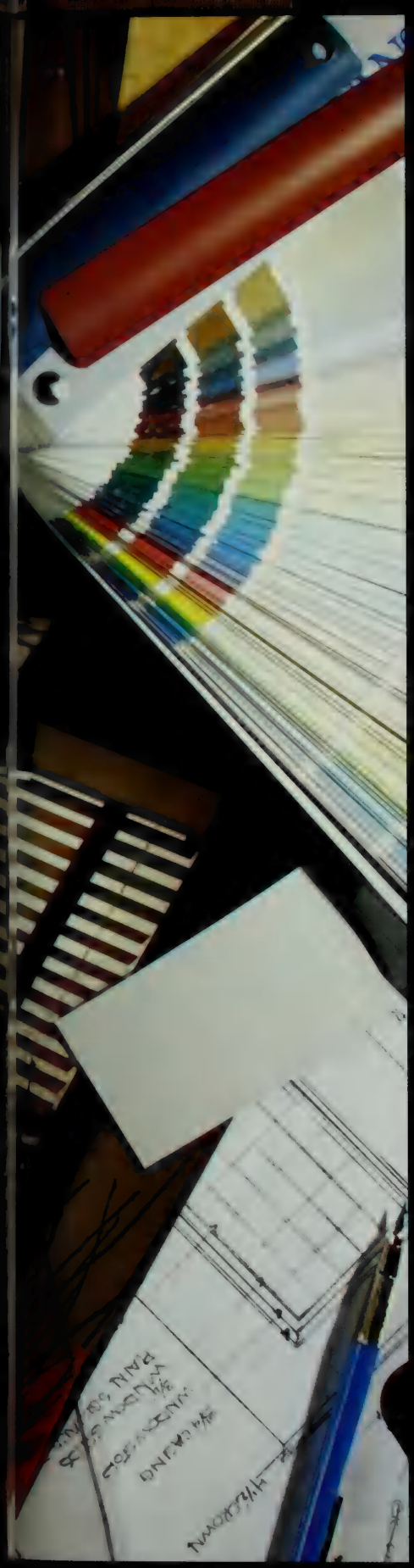
Find the courage to say what's on your mind, and when the occasion demands, find an appropriate way to say good-bye: action in the face of difficulty is one definition of courage.

Conversely, help your employees aim for their own success.

Plan for your own people as effectively as you would for your clients. Despite technological advances, there is no computer that can exercise good judgment and no asset as valuable as the right person for the job.







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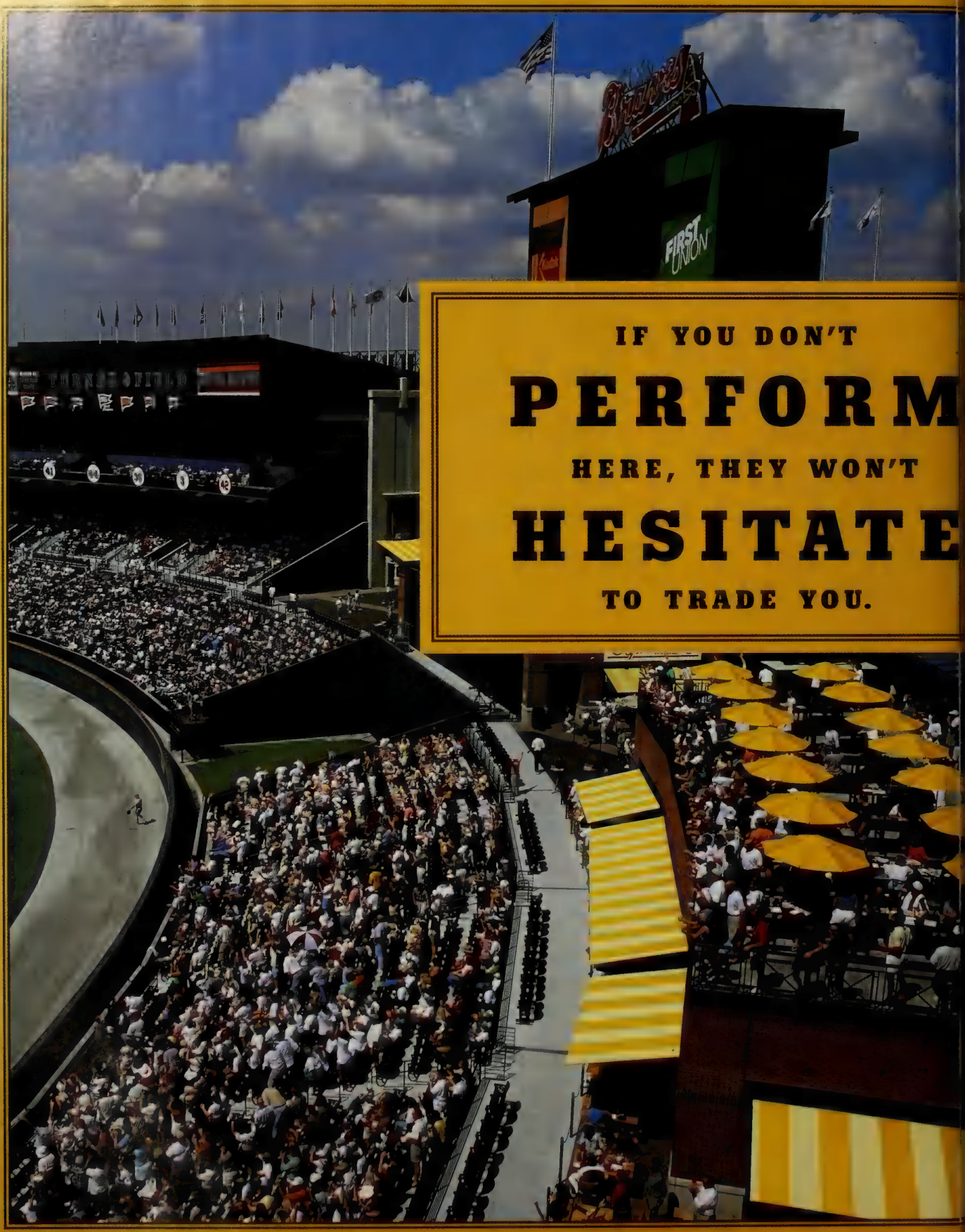
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LETTERS



The good, the bad, the ugly
In February's criticism of the Culver City Trivida building (above) by Eric Owen Moss [page 104], author Suzanne Stephens begins and ends her four-page piece asking, Why do this? My question is, Why write about it? There are many other worthwhile and interesting projects out there.
—Daphne Tomchak, Architect
Seattle

That someone took time to visit Trivida and write a "critique" is troubling. I say "critique" because the writer seemed afraid to honestly express her real opinion of the building. She lets Mr. Moss's own explanation of his design go basically unchallenged.

Seeing this project in RECORD makes me wonder if architecture has become a competition to design the most bizarre structure a client will pay for. The cost of construction must have far outweighed its benefit, and having 84 drawings to refer to was surely a nightmare for the builder.
—Keith P. Hemingway
Seattle

Stephens responds: The article examined the risks of experimentation. Few architects are willing to question conventional aesthetics and torture uninteresting materials into such unexpected forms.

Orthogonal peg in a round hole
When I examined Peter de Bretteville's Cistern house in a home magazine, I assumed the designer didn't know any better. Now that I have seen the same project in your February issue [page 124], I cannot help but respond. It seems to me that the architect and his wife missed a wonderful opportunity. Confronted with what is essentially an inverted Palladian villa, they allowed the structural grid to dominate. From the photographs of the interior, you can hardly tell the building is round because there is very little interplay between the circle and the square or, for that matter, the inside and the outside.

The architects never questioned the Platonic geometry they were given, so now their unique cistern looks, I imagine, more like the Modernist boxes and brick neocolonials that line their street.
—Jay Klebeck
Powerline Design
Hermosa Beach, Calif.

Paper plans
Your February Digital Architect piece concerning coming software that "will completely change the way architects design" [page 43] promotes an entirely new product-delivery system not born of professional necessity. Author B. J. Novitski apparently imagines a seamless jump from the creation of 3D drafting and modeling aids to the orchestration of a complete revolution in the worldwide building industry.

Software designers have neither the right motivation nor the expertise to oversee a change on the scale proposed. Our existing paper-based product-delivery system may be ripe for improvement or replacement, but if a change is desirable (or inevitable), then architects, engineers, and contractors must wrestle the lead away from the CADD industry.
—Brad Gaubatz, AIA
Sarasota, Fla.

Substance abuse
Douglas Coupland's feeble little Critique in February [page 39] is one of the most appalling stories I have ever read in ARCHITECTURAL RECORD. His enthusiasms concern nothing more than fashion. Ultimately, the piece blatantly fails to acknowledge the far more important aspects of architecture that must be dealt with by architects.
—Scott Springer, AIA
New York City

Learning from London
Ironically, American designers are approaching the new century by stepping back into the past—with retro-tecture and faked small-town nostalgia passed off as urbanism. Our European (and Asian) "old world" counterparts, meanwhile, attempt to live and design for the present and future. In addition to the green and energy-conscious concerns cited in Robert Ivy's March editorial [page 15], architects abroad put a heavy emphasis on development of humane and user-friendly intermodal transportation systems that minimize dependence on the automobile. Perhaps recent British experience will help refocus us on the possibilities of the here and now.
—Jeremy Scott Wood, AIA
Boston

Are social issues engaging?
I eagerly read January's "Listening to Critics" [page 68], hoping for some understanding of the current state of contemporary architecture. Alas, there were only passing mentions of architecture's "social relations," which I interpreted to mean the social contract to produce livable housing, inspiring schools, humane hospitals, and memorable public buildings. Today, except for buildings where self-expression prevails (such as museums and private houses), few other types engage critical opinion. This may explain why the six critics appear fixated on aesthetics, showing little interest in the challenges now confronting architects in an irrational landscape influenced by Gehry and Hadid.
—James A. Gresham, FAIA
Tucson, Ariz.

Newhouse overlooks Mies
The complete omission of Mies van der Rohe's National Gallery in Berlin from Victoria Newhouse's otherwise interesting January essay on Daniel Libeskind's museums [page 90] is surprising. The gallery is only a few kilometers from Libeskind's new Jewish Museum.
—Robert Lawton Jones, FAIA
Tulsa, Okla.

Credits/corrections
The translucent panels at the Goodwill Games Swimming and Diving Complex in East Meadow, New York, were not made of fiberglass, as we reported in the March issue (page 133). The project features a cellular extruded polycarbonate panel system manufactured by CPI International.

The photograph of San Francisco City Hall on page 61 of the February issue was taken by Jim Thielemann for Ceitronics.

The construction manager of the Soaring Eagle Hotel (February, page 173) was the Christman Company of Lansing, Michigan.

Staff architects Tse-Chiang Leng and Harry Pell were part of the team working on the Atlantic City lighthouse featured in January (page 107). The landscape architect for the project was John P. Williams of Miceli Kulik Williams and Associates.



In December's Product Reports, the cabinet hardware from Gruppo Valli & Valli pictured on page 110 was mistakenly identified as being designed by Sir Norman Foster. His door lever for the manufacturer is shown above.

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SPEAK OUT Architects are neglecting the bulk of housing consumers, causing a dearth of good design and a rift in the profession.

ANDRES M. DUANY

Andres M. Duany is a principal in the Miami firm Duany Plater-Zyberk & Company with his wife, Elizabeth Plater-Zyberk. The firm was founded in 1980 at the time of the couple's design for Seaside, Florida, which began an ongoing debate on the alternatives to suburban sprawl. Both partners teach at the Urban Land Institute and the University of Miami and were involved in founding the Congress for the New Urbanism.



This issue of RECORD displays some of the few excellent house designs completed recently. But these designs are incomprehensible to many in the architectural profession, just as the hundreds of thousands of builder houses completed this year are incomprehensible to the elite architects whose work is highlighted herein. There is a schism in the profession so deep that few can discern the realities of both sides, let alone straddle the abyss.

Inhabitants of each side are self-sufficient. They have not only their own publications but their own history, methodologies, professional organizations, great masters, language, and so on. They rarely acknowledge each other except to be dismissive—one side is painted as artsy, impractical, and self-indulgent, while the other is seen as commercial and kitschy. There would be no need for rapprochement except that if they worked together, these two groups could take steps to salvage the architectural profession's failing covenant with the public.

Housing consumers, in all their variety, have a huge effect on design, but they are largely misunderstood by most architects. For the sake of clarity, I will delineate four categories of consumer: the Patron, the Client, the Victim, and the Customer—with this last category being the one that needs the most attention.

Patrons are architectural sophisticates. They commission a building as a work of art and are willing to put up with high costs and controversy in support of a designer's concept. As they are often a major force behind most of what is deemed worthy of publishing, Patrons permeate architectural periodicals. Although patrons are rare, their numbers appear greater because they are geographically concentrated near the media meccas of New York and Los Angeles. Note how quickly the Patron class drops away as you move toward Philadelphia or Irvine.

A second type, the Client, is not so much sophisticated as savvy. By making themselves accessible to architects during the design process, Clients *acquire* a modicum of sophistication. The resulting buildings can be quite good. Often, a government official will rise to the level of Client. Clients underwrite most of the decently designed housing in America.

Victims are those who, due to limited income or a tight local housing market, have no choices. They are grateful for any sort of place of their own and must accept whatever is available. Some affordable housing designed for this part of the population, such as Michael Piatok's, can be very good; Dan Solomon's housing in the tight market of San Francisco can be austerely elegant. Strong design in this category is often a result not just of talent but of a desire to accommodate consumers who have no choice in the matter (and who often grow to appreciate good architecture).

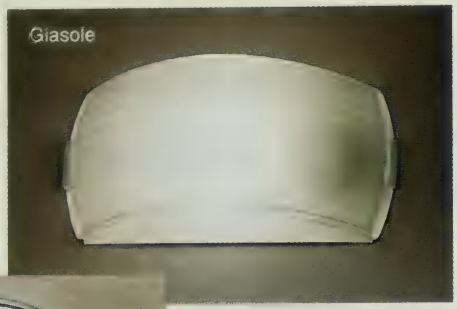
The Customer is the most common consumer of housing—and the most problematic. Customers have no contact with architects: they arrive at a decision to purchase in an uneducated state at best, but more often after being manipulated during their experience of comparison shopping. Only slightly attuned to the rigors of design, a Customer is lured by stylistic kitsch and gimmicky programs offered by developers. Since these options are always readily available, they tend to drive out decent residential architecture. The situation is exacerbated by the fact that most "good" architects disparage and ignore this market, as architecture school has taught them to do.

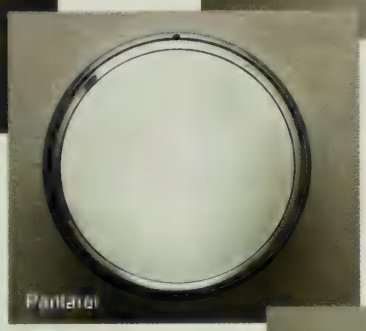
This is a huge mistake. The Customer housing market, in desperate need of talent, is a venue in which good architecture can flourish. Architects must take on the difficult and problematic category of Customer; it is imperative that these consumers enter the consciousness of the architectural profession, which is missing out on a huge segment of the built environment.

Confusing a Customer with a Client will leave architects with unsold housing and in financial ruin. But addressing the Customer correctly will enable us to alter our landscape for the better. ■

Contributions: *If you would like to express your opinion in this column, please send submissions by mail (with a disk) to Speak Out, Architectural Record, Two Penn Plaza, New York, N.Y. 10121; by fax to 212/904-4256; or by E-mail by visiting www.archrecord.com and clicking on News/Features/ Dialogue. Essays must not exceed 700 words. The editors reserve the right to edit for space and clarity. Where substantial editing occurs, the author will receive text approval.*



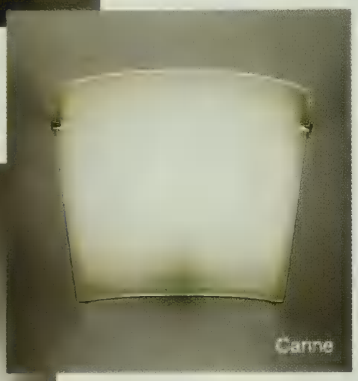




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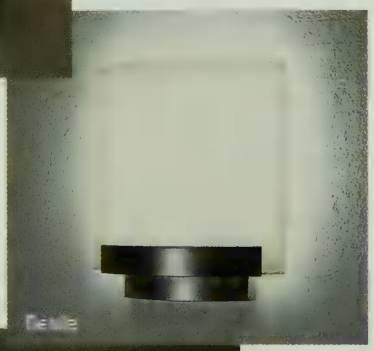
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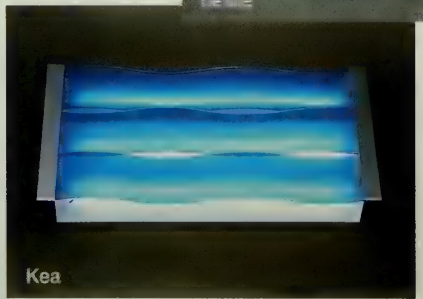












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CIRCLE 12 ON INQUIRY CARD

MENTORS Getting involved in "green" design: a primer on the important issues and the options available to architects.

Sandy Mendler, AIA, is a senior designer at Hellmuth, Obata + Kassabaum in Washington, D.C., and leads the firm's sustainable design group. She is on the board of directors of the U.S. Green Building Council and is vice chair of the AIA Committee on the Environment.



As sustainability takes greater precedence in the design of new buildings, architects getting started with the "green" way have an abundance of complex issues to consider. RECORD asked Sandy Mendler of HOK to provide an overall strategy for designers who are embarking on sustainable projects.

You have just been given a terrific opportunity to design a "green" building. What next? What to think about first? There are many critical issues to address at each stage of the design process—and due to their complexity, it would take a long time to address each of them fully. But to get started, this overview can be used as a framework.

Initiating the project: Select team members who share an interest in sustainable design and look for allies to supplement your efforts, such as local green building organizations and university resources. Build a common vocabulary and understanding of the issues involved. Invest time in sustainable design goal setting. Develop an energy budget and quantitative performance goals wherever possible. Consider using the U.S. Green Building Council's rating system to identify performance targets (see www.USGBC.org).

Considering the context: Look at possible reuse of existing structures and redevelopment of urban areas to reduce sprawl. Develop links to public transit and strategies to create pedestrian-friendly, livable communities. Respond to the cultural and historic context and protect sensitive natural areas.

Siting the building: Consider how the massing and orientation will affect energy performance, opportunities for daylighting, and natural ventilation. Look at how design options will influence water features such as flood plains, wetlands, and stream corridors. To preserve natural amenities, minimize the need for cut-and-fill and control the location of site utilities.

Shaping the design solution: Consider passive heating, cooling, and ventilating strategies and daylighting opportunities. Integrate renewable energy systems and water-reuse strategies. Evaluate heating and cooling loads of proposed building configurations, heat-recovery opportunities, and locations of intake and exhaust air.

Developing the planning concept: Create planning strategies and flexible infrastructures to enhance long-term flexibility and avoid premature building obsolescence. Provide effective ventilation and isolate potential sources of contamination. Develop strategies to accommodate recycling, including collection facilities at the point of use on each floor and staging areas at the loading dock.

Developing specifications: Clearly identify environmental performance goals in specifications, such as maximum allowable volatile organic compounds (VOC) content, minimum recycled content, nonpermissible toxic materials, and energy and/or water efficiency of appliances, fixtures, and equipment. Develop specifications for construction-waste recycling, reuse of on-site materials, tree protection, and erosion control.

Optimizing the design: Use the building envelope to reduce heating and cooling loads while maximizing the use of daylighting. Use energy and daylight modeling to determine optimal glazing performance, insulation values, and interior and exterior sunshading. Develop daylight strategies in tandem with electric lighting. Consider ceiling height, reflectivity of interior finishes and furniture, fixture efficiency, and lamp longevity.

Investigating materials: Search for materials that are durable and low-maintenance and will have low environmental impact throughout their life cycle. This includes raw materials, production processes, packaging and shipping, installation and use, and disposal and reuse. Explore opportunities to use smaller quantities of materials, reclaim existing, salvaged, or refurbished ones, and incorporate locally manufactured materials.

Getting it built: Communicate the project's environmental goals to the construction team. Carefully review submittals, shop drawings, and proposed materials substitutions, and document the lessons you have learned for future projects. ■

Questions: *If you have a question about your career, professional ethics, the law, or any other facet of architecture, design, and construction, please send submissions by mail to Mentors, Architectural Record, Two Penn Plaza, New York, N.Y. 10121; by fax to 212/904-4256; or by E-mail by visiting www.archrecord.com and clicking on News/Features/Dialogue. Submissions may be edited for space and clarity.*

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PULSE RECORD readers were asked: Does the architectural profession need the star system?

Yes: It's part of architecture's glamour—what the profession has that medicine doesn't. But the problem remains that young designers aren't known to society at large. Today's stars are the same bunch of 50-year-olds that Philip Johnson has been calling "the kids" for decades.
—Jayne Merkel
Editor, Oculus *magazine*
New York City

No: Let the buildings we design be stars. As in pop music, one-hit wonders abound in the profession.
—Roberto B. Yumol
Honolulu, Hi.

No: It's all smoke and mirrors. For me the issue is talent. Some people are more talented than others. That's a very undemocratic thing to say. If it happens that people of talent achieve some kind of public profile, unfortunately I'm part of the machinery.

Some people's ability to get work is contingent on remaining in the public eye. But I have to say that I'm more struck by the architects of my generation who are extremely reluctant to toot their own horns. They ought to be out there screaming, because they have good ideas.
—Herbert Muschamp
Architecture Critic
The New York Times

Yes: The star system is not a necessity but an inevitability in any field. There's a need for a standard by which to judge the success of a profession, and the stars fulfill that need. Architects may follow the lead of the stars. Or, if they challenge them, then the cycle begins again.
—Aida Isabel Latorre
Dallas

No: Stars enhance the visibility of our profession, and I thank them for that. But the profession also owes thanks to the thousands of lesser-known architects who have made it their mission to strive for excellence and take good care of clients. Both groups need each other to give our profession credibility, but we don't need a system.
—Bruce H. Schmiedl, AIA, CSI
via E-mail

Yes: The profession needs celebrities and heroes to provide visionary designs that inspire other architects. Where we fail is in our awards, which recognize big-name architects without acknowledging the others who make projects work beyond the conceptual thinking.
—Dale A. Anderson, AIA, NCARB
Tsang Partnership Inc.
Tacoma, Wash.

Yes: Having stars and heroes in architecture is important for two reasons: education and inspiration. Stars are valuable for educating the general public on the importance of good design. Architects such as Zaha Hadid and Billie Tsien encourage young women working in the male-dominated profession.
—Eric Mersmann
Hancock + Hancock Inc.
Chicago

No: Haven't we done enough hero worship by the time we graduate from school? Glamorous architecture is fine, but what do you say about those frequently published firms that don't even have basic medical coverage for their employees?
—Steve Shay
MIT
Cambridge, Mass.

This Month's Question

Do you plan to take any action on the Y2K crisis?

In March, ARCHITECTURAL RECORD reported that firms can take technical and legal steps to reduce the impact of the year 2000 computer glitch (page 72). According to author B. J. Novitski, the problem might result in "a variety of scheduling and calculation errors. Older computers with internal clocks may simply cease functioning." Equally alarming is the idea that building systems such as elevators will fail, creating legal implications for design professionals. The clock is running . . . tell us what you plan to do.

Do you plan to take any action on the Y2K crisis? ☐ Yes ☐ No

Copy and fax this form to 212/904-4256, or, to respond by E-mail, visit www.archrecord.com and click on News/Features/Dialogue to voice your opinion.

Note: Pulse reflects individual responses to each month's question and is not meant to be construed as formal research.

What is your plan of action?

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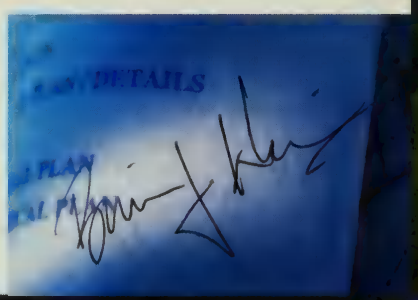
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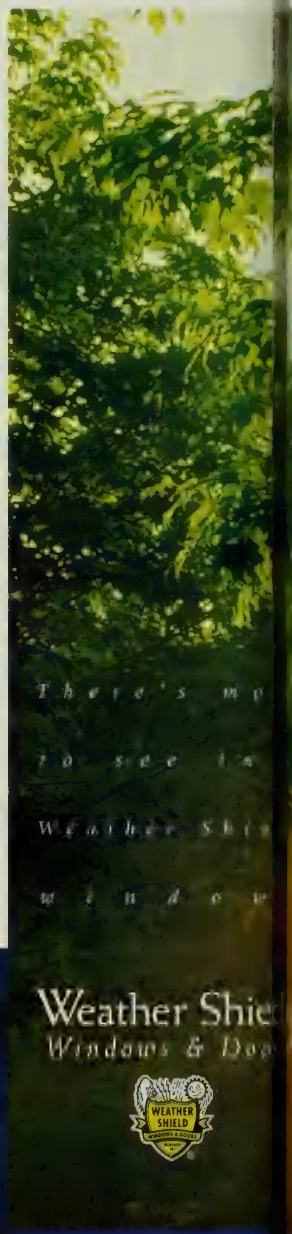
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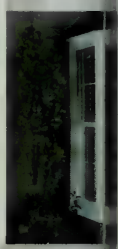
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Chris Wiseman, Architect









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CIRCLE 20 ON INQUIRY CARD

CRITIQUE Could Piano's Debis Tower in Berlin have been built in the U.S.? The answer reveals the flaws afflicting American architecture.

BY PETER DAVEY

ne of the most perceptive recent marks about the differences etween North American and uropean architecture appeared in ie October 1998 issue of RECORD James Russell's discussion of enzo Piano's Debis Tower in Berlin. e asked, could the building's elab-rate, delicately scaled and energy-onserving outer wall "have been one in America?" The energy-onservation and glare-control as-ects of the system would, he wrote, e even more advantageous in ost of America, which is warmer nd sunnier than northern Europe," ough the double-wall strategy ight not work in areas of high umidity.

Yet "as for cost," he continued, all buildings are generally far less xpensive to build in America, but eavily customized curtain walls are ore common in Europe, so the remium for such specialized tech-ology in the United States would kely be far higher."

There, in a nutshell, lie the hief differences between commer-ial building practice in the two iggest Western economies. Ger-nany and the U.S. in many ways tand at opposite ends of a range of rchitectural production, a spectrum hat can also accommodate the ork of all other prosperous coun-ries: not only those in the West, but ast Asia and Australasia as well.

What enabled Piano's design in erlin to be built? There are at least hree factors. First, Germany has ot been blessed with an abun-

eter Davey is the editor of The rchitectural Review *in London.*

dance of fossil energy (nor cursed by it either; North Sea oil has been one of the major reasons for Britain's industrial decline in the last three decades). So, Germany and other prosperous northern European countries like Austria, Sweden, and Switzerland have stood in the forefront of energy conservation, particularly for buildings. Regulations and (sometimes) tax structures encourage investment in energy-efficient envelopes and control systems. The double wall, with its climate-buffering interstitial layer of air, is becoming commonplace in such cultures.

Power to the people

The second factor behind Piano's wall is German insistence that individuals should have some control over their immediate environment: privacy, light, and atmospheric conditions. The push for spatial individuality comes partly from the unions, but mainly from a social consensus that office workers should have a sense of particular and private places within the whole.

As a consequence of social pressure, most new German office buildings contain assemblies of one- or two-person cells, each with openable windows; inhabitants can alter the temperature and ventilation of their particular spaces without greatly varying the building's overall energy demands (increasingly sophisticated environmental control systems clearly help in this respect). The German insistence on individual work rooms can lead to long, boring corridors, and though the notion of Burolandschaft (landscaped open offices) first emerged in Hamburg in the late 1960s, it has not been very widely adopted.



Piano's Debis Tower, with its energy-conserving outer wall.

A more spatially and humanistically interesting system, the combi-office, in which individual cells cluster around open group spaces, has evolved in the Netherlands, Sweden, and north Germany. It is appearing sporadically throughout northern Europe, and has generated some remarkable buildings, such as Ralph Erskine's Stockholm World Trade Centre and Niels Torp's recently completed British Airways headquarters at Heathrow near London.

The third factor is that the most distinguished office buildings in northern Europe are usually built by companies for their own use—to project company ethos in their buildings, and experiment with new social and spatial relationships involving all parties, from shareholders to cleaners, giving everyone some benefit and making the whole act as an advertisement for the firm. How different this is from current practice in Britain, where, following U.S. practice (or so we are told), companies avoid owning buildings in which their workers toil so as to avoid tying up too much capital in property. But with the largely German-directed Euro becoming a possible world rival to the dollar, the undisputed rule of American management theory, and its spatial effects, may be up for reconsideration.

Land of the free

There is a fourth factor enabling Piano to create such an idiosyncratic wall. German architects (and foreigners who design buildings in Germany) have much more autonomy than most other architects when they design commercial buildings. Most German architects curse their country's stringent regulations, but they actually seem more free of constraint than designers almost anywhere else in the world. They have a client body that broadly views architecture as an instrument for the improvement of humankind and its relationship to the natural world.

Federal and state building controls may be stringent, but authorities at every level believe in trying to obtain good architecture, and the criteria they use are far more subtle and humanly relevant than the "biggest," "tallest," or "most expensive." Also, German architectural organizations encourage and promote a competition system that is not only well run and widely used at every level, but is considered to be a mechanism by which the profession teaches itself to face new challenges.

German architects retain the prestige and power over the building process that has been greatly eroded in the U.S. and Britain. Their output ranges from the free and sometimes apparently wild productions of the Organic school, led by people like Behnisch and Hubner, to the extremely austere Rationalist broodings of such architects as O. M. Ungers and Josef P. Kleihues.

North versus south

I have placed Germany at one end of my spectrum because it is the biggest and most powerful state in the new Europe and is building so much right now. But smaller northern countries share its ethos and surpass it in different respects: the Finnish competition system, for instance, is more rigorous and instructive; Dutch social housing sets standards for the rest of the world; and the recent Norwegian architectural awareness program, intended to generate architectural, ecological, and urban awareness at every level from primary school to boardroom, is exemplary in its international importance.

In Europe, a divide between north and south runs roughly along the Rhine. Above that line, architectural education is dominated by the formidable Technische Hochschule model. Below it, the Beaux Arts school forms the pattern. In the latter, concern rests more with grand parti and *bella figura* than with the craft of assembling buildings for social purposes. This generalization is wild, but it has some substance. Most French architects, for instance, pass their working drawings to a *bureau d'études* and remain rather ignorant of construction. In Italy, architects like Piano, Massimiliano Fuksas, and Giancarlo de Carlo, who understand how to build and can make powerful tectonic statements, are few and far between. An even wilder generalization suggests that, if architecture is pursued in the south as an art and a medium dominated by figure, there is a northern relationship between constructive concerns and belief in building as an instrument for human betterment.



Lever House in New York City, unusual in the U.S. for its innovative corporate design.

I sometimes wonder if some of the difference between architecture in America and in northern Europe stems from a tradition of reverence for figure and architecture for art's sake that began when 19th-century American architects like H. H. Richardson attended the Ecole des Beaux Arts.

From the northern perspective, American commercial architecture seems exceedingly bland. Of course, most commercial architecture anywhere seems pretty dull, but the U.S. no longer appears to produce buildings that change our perceptions of the nature of commercial work like Torp's SAS building in Stockholm, Erskine's Ark in London, Norman Foster's Hong Kong and Shanghai Bank headquarters in Hong Kong, or his Commerzbank in Frankfurt.

American shortcomings

The U.S. has not always been like this. Think of the Larkin Building, Johnson Wax, or Lever House. It is perhaps impertinent to suggest reasons for the lack of such architecture in contemporary America, but from the outside, it seems clear that business does not want innovation. Set formulas are delivered with amazing efficiency by the development and construction industries.

Architecture seems to be literally marginalized, with the thin external skin being the only area left in which architects have much freedom of expression—since it has no effect on the bottom line. Space gets squashed out of consideration. No wonder PoMo (a kind of interior decoration brought to the exterior) was an American invention. Nor is it surprising that it was smeared across the world in the wake of U.S. global economic domination. (In London, for instance, SOM and its colleagues achieved boring results with the unprecedented aggressiveness of silly facade patterns and sadly proportioned squares at Canary Wharf.) PoMo may be long over as a cultural force, if it ever was one, but it seems to be taking a long time to die.

So successful has the American commercial recipe been that (again as a wild generalization) its mediocrity seems to spill over into other kinds of large buildings. Plainly there are exceptions: Frank Gehry, Richard Meier, and others keep astonishing us all. But for a nation with the size and wealth of the U.S., such highlights seem rather sparse.

There is, of course, the licensed opposition. People like Peter Eisenman and John Hedjuk continue to produce willfully antihuman designs in the name of art. And as high priests of a would-be avant garde, they explain their work in arcane, hieratic language. Why is so much American discussion about architecture conducted in prose of unparalleled turgidity? Even English critics who emigrate to America wouldn't dream of using an Anglo-Saxon word when an impressive, Greek-derived word is available. Interesting as the ideas may sometimes be, I am convinced that the abstraction of much American academic debate—particularly its reluctance to engage with the reality and presence of buildings with any clarity—is partly responsible for the dullness of much architecture.

Of course, a vast wealth of architectural talent and imagination exists in America, and it most commonly finds expression in relatively small buildings, which are less subject to the power of the real estate, development, and construction industries: town libraries and local schools; university departments; headquarters and plants for businesses too small to be closely supervised by the stock market; and a host of other types.

But above all: houses. The U.S. has a far greater number of individual houses than anywhere in the world. The best of them show an unparalleled range of of invention in form, space, materiality, and contextual relationship. Houses are crucial indicators of local culture, and they show that regionalism is flourishing in America.

In a sense, there are two kinds of American architecture: the bland, pompous expressions of imperial economic power, and the more imaginative smaller works—which are also more innovative technically than the big stuff. It is there we often find new forms of energy conservation and social thinking.

It is always difficult for architects generating brilliant small buildings to make big ones that have the same sparkle. But signs here and there in the U.S. suggest this may be happening. The rest of us hope that America will start to export such imaginative power, instead of the boring stodge that is deadening cities around the world. A Gehry in Bilbao and a Steven Holl in Helsinki are not enough. ■

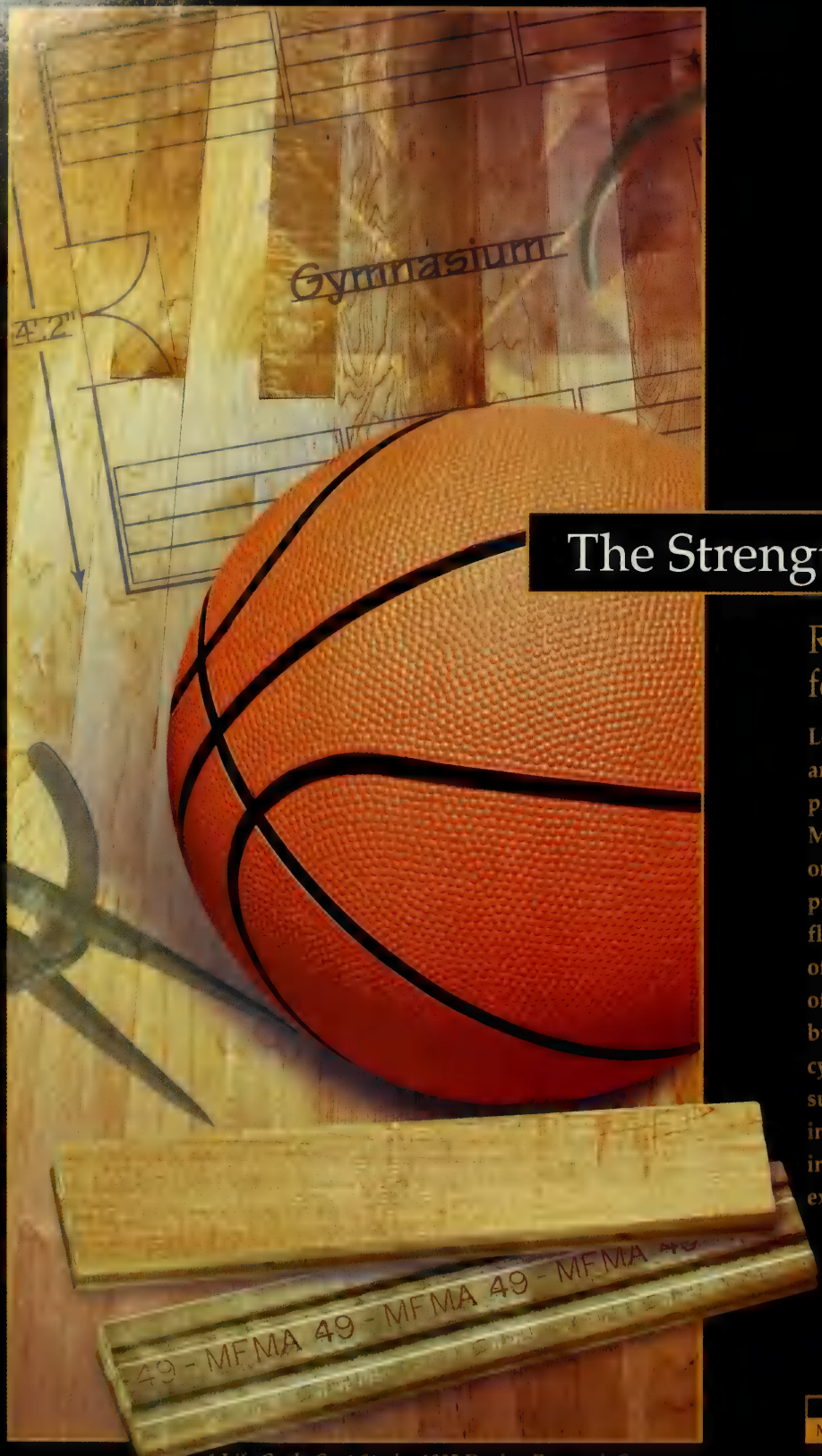
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DIGITAL ARCHITECT The computer education received by today's architecture students may not provide them with the skills sought by employers.

BY B.J. NOVITSKI

Architects and educators have long disagreed about which skills should be taught in architecture schools and which, if any, are best taught later, during apprenticeships. Professors typically emphasize design and theory, believing that the more practical skills are better conveyed in a professional context. They fear that offering more skills-oriented training might turn the professional institutions into vocational schools. Meanwhile, practitioners complain that recent graduates come to them unprepared for real work.

This disagreement has now expanded to include computer skills: schools increasingly focus on experimentation with sophisticated design software, while firms grumble that young graduates can't even do simple computer drafting.

At the same time, some interns are entering firms with computer-aided design (CAD) skills that far outstrip those of their employers. That's because some architecture schools have incorporated new digital technologies in such radical ways that the curriculum is being transformed. At the New Jersey Institute of Technology, Miami University in Oxford, Ohio, and the University of Oregon, for example, computers have been integrated into design studios for more than a decade; as a result, students are facile with the range of software at their disposal.

Michael Dingeldein, AIA, of Steed Hammond Paul Architects in Hamilton, Ohio, the former chair of the AIA's Computer-Aided Practice Professional Interest Area and a teacher at Miami University, is a proponent of such advanced study. "Working with 3D modeling software makes the students better 3D thinkers. The amount of information they can imagine and test extends their design abilities," he says.

This does not mean that computers can substitute for talent. John Marx, architect and senior project designer in the San Francisco office of Kaplan McLaughlin Diaz, teaches digital design at the University of California in Berkeley and concurs with Dingeldein on the value of 3D modeling. The proportion of outstanding designers has probably remained constant despite the emergence of technology.

Other schools, such as the Massachusetts Institute of Technology, the University of British Columbia, and the University of Hong Kong, are experimenting with worldwide "virtual studios." In these classes, students team up to design and explore solutions to communication problems brought on by collaborating across time zones and language differences. (See "The Architecture of Cyberspace," ARCHITECTURAL RECORD, November 1997, page 139.)

Robert Woodbury, an architecture professor at the University of Adelaide, in Australia, says innovative ways of exploiting technology often originate in academia rather than in the profession. For example, most CAD-based urban models now used by governments around the world were built in architecture schools. As students come to college with an unprecedented software fluency, professors who once taught how-to courses are instead looking for ways technology can foster creativity, communication skills, and critical thinking.



Daniel Guich, a student at the University of California, Berkeley, was required to use computer techniques to design and present this poster for a course in digital design.

Experience wanted

Many schools now teach 3D modeling in design studios, but some are dabbling in still more cutting-edge processes. While still a graduate student at the University of Oregon, Francis Dardis developed techniques for generating unusual and imaginative imagery. Encouraged by professor Daniel Herbert, Dardis would begin with a physical model of a simple concept. Then he would place the model on a scanner and create a 2D image, which he would subject to a variety of Adobe PhotoShop "filters." These filters perform such manipulations as adjusting contrast, adding textures, blurring lines, and changing colors. The results inspired new design ideas, which were then sketched and scanned. And the cycle continued. In the end, Dardis came up with not only a credible project but also imagery that exceeds typical student projects.

Although he has not had the opportunity to apply such novel techniques in practice, Dardis found that his courage to include innovative imagery in his portfolio made him more interesting to prospective employers. He now teaches digital design media at his alma mater. He's found that using this improved imagery with the students there leads them to a more idea-rich design process.

By experimenting with this cyclical process—from design concept to computer image to design development—Dardis believes "students more readily accept the computer as an integral tool in their media repertoires. This acceptance helps students benefit from image manipulation tools, 2D drafting

tools, and 3D modeling." An intern's ideal portfolio, he says, would demonstrate a balance between 2D drafting skills and adventurous imagery.

Without the pressure to produce real buildings, students are free to try out imaginative design techniques that would be unrecognizable in a professional setting. These techniques have the potential to transform the profession just by virtue of their creativity. However, some adjustments to firm culture may be necessary before practitioners can appreciate and adapt to the skills brought by interns (most of whom are, after all, still inexperienced in the practice of architecture).

But even as intern portfolios become more populated with computer work of all kinds, they're still lacking in their traditional area of weakness: an understanding of materials, details, construction methods, building codes, and other practical issues.

Familiarity with these areas most often develops during internship. In the past, such learning was associated with years of manual drafting under the supervision of a more experienced architect.

Computer technology is, ironically, depriving many interns of this experience for several reasons. Some of those who come into a firm with strong modeling skills may be sequestered in a narrow design niche where they do not have the opportunity to develop other skills.

But another, more important reason may be that young people new to a practice that makes good use of technology may find limited opportunities for mentoring. The senior designers often feel it's more efficient to do all their drafting themselves—they can do it on a computer practically as fast as they can think about it. Even large projects can now be executed by relatively small design teams.

As a result, however, in comparison to their predecessors, many of the architects who will reach mid-level positions in the next 10 to 15 years will lack exposure to a broad range of practical experiences. What will this mean to the profession and the quality of buildings?

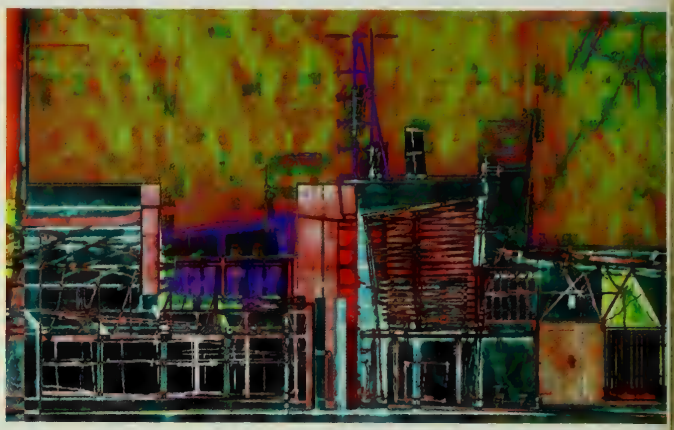
Dingeldein says his firm is addressing this situation in several ways. Because most senior designers are not yet fluent in 3D modeling, they will often team up with younger designers, thus offering an apprenticeship, albeit a nontraditional one.

But this is not enough, he admits. "Interns come into a firm and think all they want is to be under the wing of a designer," Dingeldein says. "But when it comes time to pass the licensing exam or put a building together, they will not have sat through a long drafting experience or seen how a wall section is drawn." One way to approach this problem, he says, is to require mid-level job captains to take on more jobs, thus forcing them to use more intern-level help.

New employees fresh from school find a familiar and comfortable home in Kaplan McLaughlin Diaz's design department, where all designers use 3D modeling. In testament to the acceptance of fledgling designers here, it was a new intern who initially got the studio interested in animations. But, according to Marx, "even though they know how to generate form, interns don't yet understand the building types."

The firm aims to help them to become something more than form makers. "We want the interns we work with to acquire the background they need to understand how buildings go together pragmatically, from both a design and a construction standpoint," Marx says.

At the beginning of design, for example, a senior practitioner within the firm will discuss with an intern the practical program requirements of the particular building type. And for some projects, interns in the design department are allowed to follow the project as it progresses through the firm, working temporarily within the other departments that handle such aspects as design development and construction documents.



Corina Martinez, a graduate of the Boston Architectural Center, uses computer-based graphic standards for master plan projects at Shepley, Bulfinch, Richardson & Abbott.

What students can do

The dilemma for students is that computer technology is giving them more, not less, to learn during their school years. There is probably no single school that regularly turns out graduates with solid grounding in all areas of design, theory, and practical experience.

At the Boston Architectural Center (BAC), the curriculum emphasizes practice-related work. Every student is required to work in a firm full-time while going to school at night. If students can survive this grueling regimen, which can take them eight to 10 years to complete, they emerge with practical skills that make them more readily employable than most graduates of more traditional programs.

A recent BAC graduate, Corina Martinez, has worked at the Boston firm of Shepley, Bulfinch, Richardson & Abbott Architects for several years. She says her background and broader experience enabled her to come to her first job with a more realistic view of the kinds of work interns are typically given. While in school, she was careful to balance her 3D modeling and 2D drafting courses. Now she uses these skills in creating a computer-based graphic standard for the firm's master plan projects.

Still, like any intern, she has to be vigilant, making sure that her employer allows her to expand her skills into all of the areas laid out in the Intern Development Program, a plan developed and jointly run by the AIA, the National Council of Architectural Registration Boards, the Association of Collegiate Schools of Architecture, and the American Institute of Architecture Students to hone the professional skills of young architects.

Martinez's challenge is not new. Dedicated graduates of architecture programs have generally tried to contribute creatively to their newfound place of employment while struggling to fill in the gaps in their professional education. But the culture in which this occurs has altered dramatically due to technological changes. Adapting to new ways of working will require flexibility among all concerned: students, professors, and practitioners. A good place to start would be for each group to find some way to see what the others are doing and analyze the differences in each of their expectations.

"For better or for worse, computing is changing the field of architecture and will continue to do so," Professor Woodbury says. "As academics, our best role is to seek out those changes or create them; to challenge them or foster them; and to try to make these changes, which are inevitable, more interesting and productive." ■



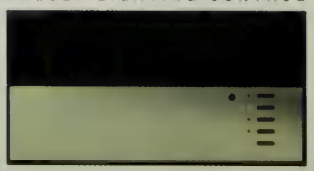
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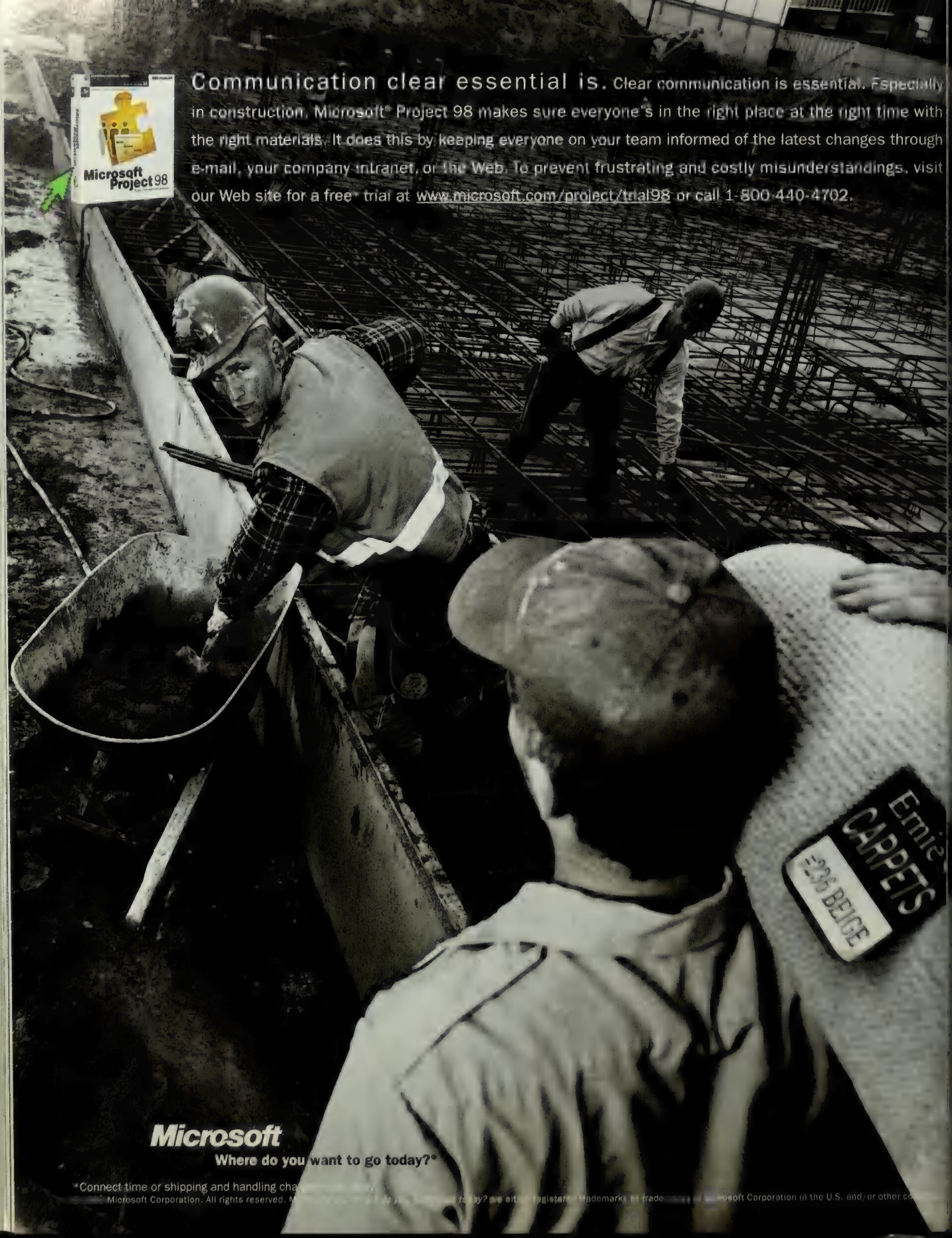
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EXHIBITIONS A preview of MoMA's splashy summer show, which examines innovative houses from around the world.

BY SUSAN DOUBILET

*"**The Un-Private House**," the first in a series of thematic architecture exhibitions at The Museum of Modern Art in New York, will be on view from July 1 to October 5, 1999. Organized by Terence Riley, chief curator of MoMA's department of architecture and design, the show will examine 26 recent houses by international architects whose designs "reflect the transformation of the private house in response to changing cultural conditions and recent architectural innovations." The following discussion of the exhibition is based on photographs of some of the projects, an essay from the exhibition catalog by Riley, and an interview with him.*

By mounting the exhibition "The Un-Private House," MoMA positions itself, once again, at the cutting edge of architecture. In the first place, it is showcasing houses influenced by the latest oldie-but-goodie, Ludwig Mies van der Rohe. Second, many of the houses examined are not "boxes" but "blobs" (defined as structures enclosed by geometrically complex forms). And third, in virtually all of these houses the spaces unfold cinematically; in other words, to comprehend them one must move through them.

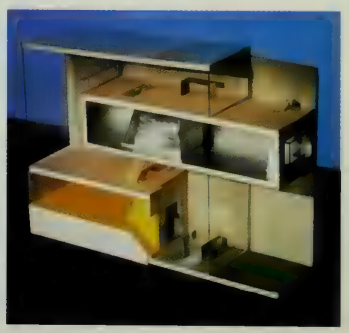
The three themes—transparency, fluidity, and spatial unfolding—all imply an absence of barriers, hence the "un-private" in the show's title. By choosing 26 unusual dwellings, Riley reconfirms the view of the house as a laboratory and indicator of design invention. And as each example refers to at least one of the three ideas, the exhibition promises to be complex, vital, and stimulating.

As for the revival of interest in the work of Mies van der Rohe: who would have guessed it? Thirty years ago, the early Postmodernists denounced his work as sterile and uncontextual, and fantasized about drowning it: Recall Stanley Tigerman's revisionist collage of a sinking Crown Building.

Back then, the most adventurous young architects, the so-called New York Five (Richard Meier, Charles Gwathmey, Peter Eisenman, Michael Graves, and John Hejduk) turned to the seminal work of Le Corbusier for inspiration (while others, of course, turned their focus further back in history). Now, the work of Corb, while still admired, is for the most part considered too static by the architects represented in the upcoming MoMA exhibition, many of whom are a generation younger than the NY5 members.

In the current re-revision of Mies, his work is recalled not for its coldness but for the sensuousness of its materials. Most important in today's focus on Mies is the issue of transparency (not coincidentally the significant precept of the "Light Construction" exhibition at MoMA in 1995). Current architects are concerned with implications of transparency that expand on Mies's interests. They use glass not only to allow residents to look out but also, in urban situations, to allow

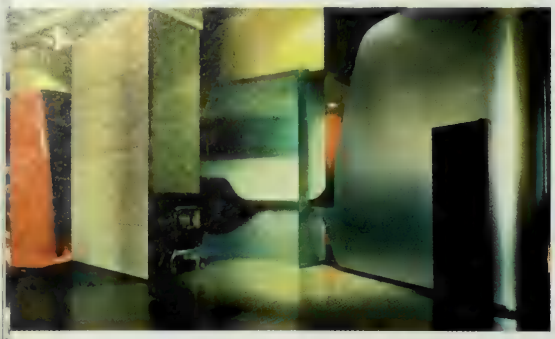




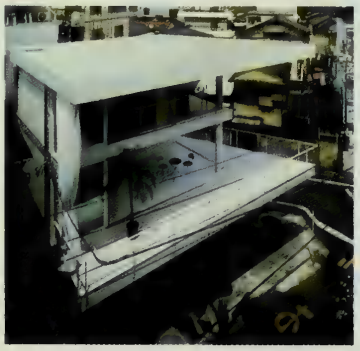


What's in: Guthrie + Buresh's WorkHouse in Los Angeles (top); MVRDV's row house scheme (above left); and Herzog & de Meuron's Kramlich Residence (above).

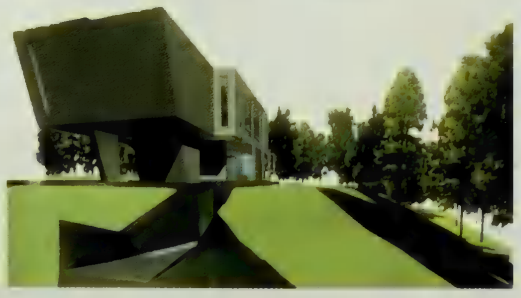
Susan Doubilet is co-author of American House Now *(Rizzoli),* Private Architecture *(Monacelli), and the upcoming* European House Now *(Rizzoli).*







What's on the edge: Kolatan/MacDonald Studio's Ost/Kuttner Apartments in Manhattan (top); Van Berkel & Bos–UN Studio's Moebius House in Holland (above); Shigeru Ban's Curtain Wall House in Tokyo (left); and Archi-Tectonics' Millbrook Residence (below).



Who's in the show: *Archi-Tectonics, Shigeru Ban, Michael Bell, Preston Scott Cohen, Xaveer de Geyter, François de Menil, Neil Denari, Diller + Scofidio, Farjadi Farjadi, Guthrie + Buresh, Hanrahan and Meyers, Hariri & Hariri, Herzog & de Meuron, Steven Holl, Kolatan/MacDonald Studio, Rem Koolhaas, Lupo/Rowen, Michael Maltzan, MVRDV, Sanaa/Sejima/Nishizawa, Joel Sanders, Scogin Elam and Bray, Clorindo Testa, Bernard Tschumi, Ungers and Kinslow, and Van Berkel & Bos.*

strangers (not present around Mies's secluded Farnsworth House) to peer in.

Two glass-faced row houses in Amsterdam (page 43, bottom left) by Winy Maas of the Rotterdam partnership MVRDV are among those that provocatively use glazing. Maas is quoted in Riley's essay as saying, "Putting the inside, even your own, on display seems a very modern topic." He compares it to the way people "show their privacy on television in order to attract attention."

For Maas, exhibitionism is a design goal. Compare Mies, who had the arrogance to frame his clients' view of the world but the delicacy and subtlety to remove his clients and their personal activities from sight. The two row houses by MVRDV are cleaved by a path at their party wall (the traditional guarantor of privacy), offering passersby a seductively oblique view into the houses. This is, indeed, wall as television screen, life as soap opera, voyeurism by invitation.

Key to today's repositioning of Mies is the work and writings of Rem Koolhaas and his firm, the Office for Metropolitan Architecture, whose Bordeaux House is in the exhibition. In Koolhaas's book *S, M, L, XL*, the vision of Mies, says Riley, "is no longer pure, classical, and sober, but queer (or bent) . . . , Hollywood, and delirious." Riley points to the Bordeaux House's plinth as derivative of Schinkel by way of Mies, to one view of the house as a "remake" of the garden view of Mies's Riehl House, and to another as an echo of Mies's unbuilt "glass house on a Hillside" of 1934.

The Swiss architectural firm Herzog & de Meuron is also engaged in reinterpreting Mies's work. In the Kramlich Residence (page 43, bottom right), "the hovering roof sheltering a glass enclosure," suggests Riley, "is part Barcelona Pavilion, part Farnsworth House."

While "blob" houses may sound strange, technological advances have made them possible. Computers have simplified the visualization and fabrication of continuously flowing surfaces, which can be molded out of fiberglass, as seen in the intensely colored Ost/Kuttner Apartment by Kolatan/MacDonald Studio (this page, top left). Several other houses in the exhibition, including the seductive Moebius House (this page, second from top) by Van Berkel & Bos, take both their names and their primary forms from similar geometries. These complex forms impart a sense of spatial fluidity, blurring the boundaries between exterior and interior spaces and between one interior space and another.

As for houses influenced by a cinematic approach to design, these are conceived so that their spaces can be understood by the visitor only as they unfold—frame by frame. Although by definition these places must be perceived in person, the exhibition will try to re-create the experience as realistically as possible. In addition to including some 25 conventional models, it will include computer-generated and digitally enhanced photographs and drawings, as well as interactive displays developed with the MIT Media Lab. The latter will let visitors take a virtual tour of several projects.

Riley's catalog essay strains hard not only to substantiate the trend toward transparency and fluidity but also to argue that the houses reflect sociological shifts in our society. It is true that childless people, a growing segment of the population, may require fewer discrete spaces, that the computer ties our private spaces to the outside world, and that the hybrid home/office is proliferating. But the show's custom houses scarcely validate these generalized points, and vice versa.

Come July, we will be able to experience, on our own, the sense of boundlessness, seamlessness, and fluidity conveyed by these houses. Some will be found radiant, some a bit alienating, but the totality may indicate that architects have begun to deviate from the established path in order to pursue new fantasies about form and space. ■

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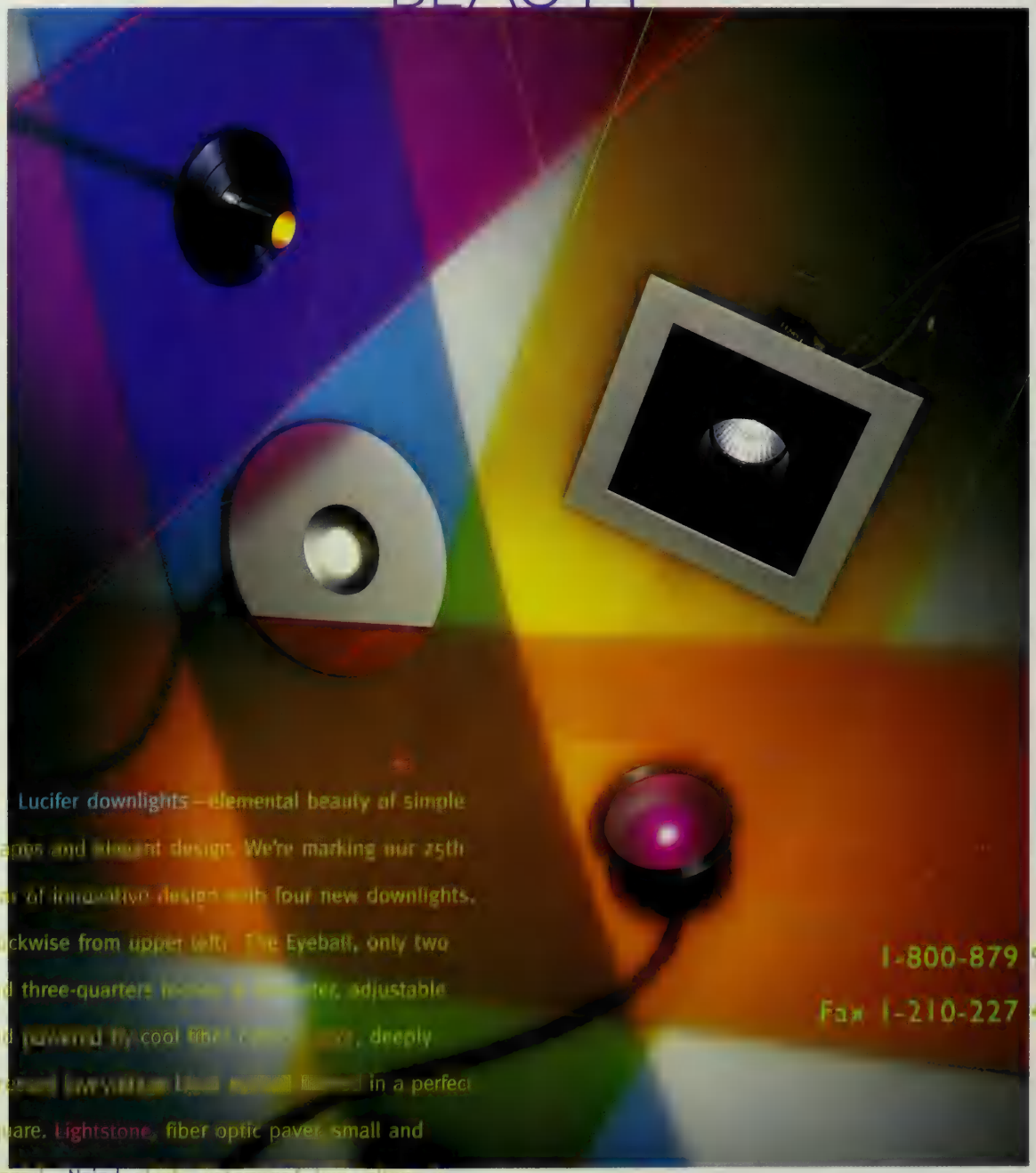
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CIRCLE 25 ON INQUIRY CARD

CORRESPONDENT'S FILE Denizens of Dallas have revitalized a stagnant urban core with housing, museums, and even public transit.

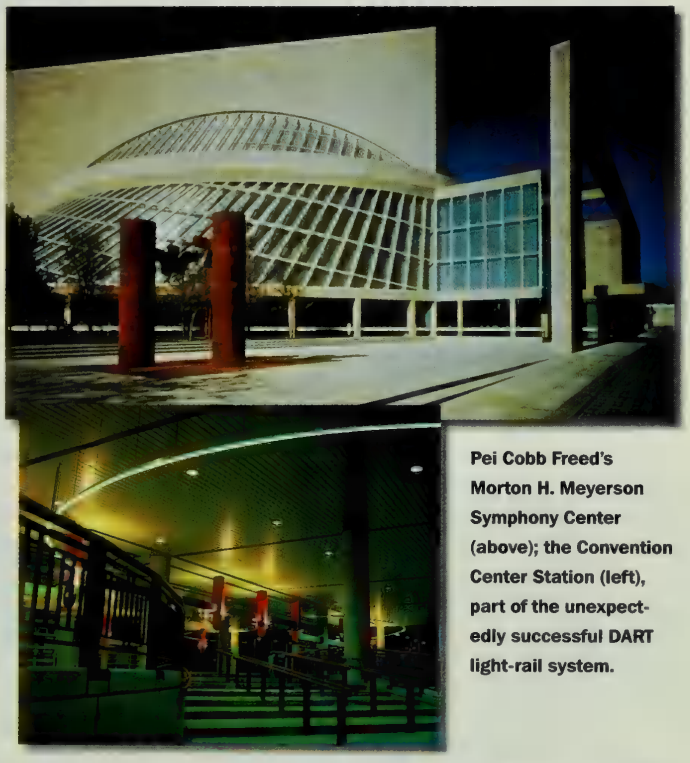
BY DAVID DILLON

David Dillon is a contributing editor of RECORD and the architecture critic for the Dallas Morning News.

Only 10 years ago, downtown Dallas had a measly 250 residents—all of them in one building. Today, more than 13,000 people live in apartments, condominiums, and lofts within a half-mile of the central core, a diaspora of suburbanites testing city life. Of all the changes in Dallas in the 1990s, this rediscovery of the center may be the most important.

It is already the most surprising, given the city's history as a capital of sprawl, where inhabitants routinely abandoned its downtown for cheaper land farther out. Between 1945 and 1965 the city's population jumped from 295,000 to 680,000 while its area expanded from 114 square miles to almost 300. It has since grown to 342 square miles, with a population of slightly more than one million. The cumulative effect is a stagnant employment environment and a downtown that has 35 percent office vacancy—the highest in the country—and 37 percent of its land in parking lots. Housing alone can't solve the problems, but it is essential for sustained renewal.

The new urbanites are living in conventional one- and two-bedroom apartments, in high-rise condominiums, and in stunning converted lofts such as the American Beauty Mill, whose 80 apartments were carved out of raw industrial concrete. Roughly one-third of the new housing is lofts, a figure that would be considerably higher had Dallas not demolished most of its recyclable warehouses and industrial buildings. Even though this new housing is still scattered and generally disconnected from grocery stores, dry cleaners, and other forms of residential life support, it represents a striking vote of confidence in a downtown that only a few years ago looked bombed out and left for dead.



Pei Cobb Freed's Morton H. Meyerson Symphony Center (above); the Convention Center Station (left), part of the unexpectedly successful DART light-rail system.

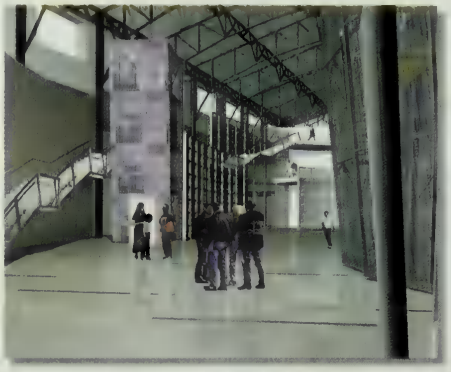
Sparking this revival have been plummeting downtown land prices (from $200 or more per square foot five years ago to $50 today), suburban gridlock, and the unexpected success of Dallas Area Rapid Transit's new light-rail system. Dallas is a car and freeway city, meant to be seen at 60 miles per hour with the top down, and skeptics thought that residents would never be enticed onto trains and that DART rail would be an expensive flop.

The skeptics were wrong. Since DART opened a 20-mile starter line in June 1996, ridership has risen to 40,000 daily, 33 percent above projections. Development has begun to sprout around some stations, raising hopes for the eventual densification of Dallas. Real estate agents have even begun saying "close to DART line" in their listings. DART has purchased 55 more cars and is extending lines to the northern suburbs of Garland and Plano, which are expected to boost ridership to 57,000 passengers a day. A commuter rail line to Fort Worth will open next year.

Even though the light-rail system is still embryonic (the trains

downtown to Dallas/Fort Worth Airport or the major medical centers, for example), it is making the city feel good about itself. Combined with the $1 billion reconstruction of Central Expressway, Dallas's equivalent of Chicago's Dan Ryan or the San Diego Freeway, it appears the fragments are being reconnected.

Dallas is also a river city, a fact that even natives tend to forget. For 90 years it has been trying to cash in on the Trinity River, which sometimes surges and sometimes trickles through downtown. The latest effort is a $1.2 billion plan calling for parks, trails, and a chain of small lakes, crisscrossed by bridges and bordered by a new tollway. Spanish architect Santiago Calatrava has provided sketches and models for several of the bridges, though the nature of his involvement is unclear. The city and its consultants are lobbying the state to do something other than conventional concrete girder bridges, but Calatrava's work—while much more expressive—is expensive and time-consuming.



A view into the "gathering," or central hall, of the Women's Museum, designed by Wendy Evans Joseph.

The new Trinity plan is proving as controversial as the old ones. Critics claim it is too expensive and that the combination of levees and a tollway will create an impenetrable barrier between city and river that will kill economic and recreational opportunities. Advocates respond that a tollway is the key to solving downtown's traffic problems, and that the chain of lakes is the best way to turn a drainage ditch into a civic asset.

Dallas was founded by a land speculator and has always been a city of deals, which became painfully apparent during last year's design competition for a new sports arena. The owners of the Dallas Stars and Dallas Mavericks, Tom Hicks and Ross Perot Jr., threatened to move the teams unless the city anted up $126 million toward the project—then essentially froze the city out of the process. The selection of a retro Deco design by Washington, D.C., architect David M. Schwarz—chosen over adventurous, contemporary schemes by Helmut Jahn and Kohn Pedersen Fox—created an uproar.

The debate got louder when the city manager resigned to go to work for Hicks, and the mayor's wife turned out to have $500,000 in stock options from one of Hicks's media companies. The Dallas City Council's call for an ethics investigation went nowhere; meanwhile, the $250 million arena is scheduled to open in 2001.

In the late 1970s, Dallas began working on a downtown arts district. The Dallas Museum of Art (by Edward Larrabee Barnes) opened in 1984 and the Morton H. Meyerson Symphony Center (Pei Cobb Freed & Partners) followed in 1989. Then nothing, as a combination of real estate bust and municipal inertia stopped development in its tracks.

However, last April came the announcement of a $250 million performing arts center that would include new homes for the Dallas Opera and the Dallas Theater Center, as well as for several smaller performing arts groups that have been priced out of performance space. The plans are fuzzy and the funding uncertain, but the proposal



presents one of the few dramatic ans for the arts district in a decade.

Another is the proposed $32 illion Patsy and Raymond Nasher culpture Garden, to be located etween the art museum and the eyerson. Widely considered the iest private collection of modern culpture in the world, the Nasher ft would give the district vital con-ective tissue and an international ultural attraction comparable to e Kimbell and Amon Carter muse-ns in Fort Worth.

The latter is undergoing a $40 illion expansion by its original chitect, Philip Johnson, while the odern Art Museum of Fort Worth about to break ground on a build-designed by Tadao Ando. These evelopments, coupled with the ntertainment and culture boom in owntown Fort Worth, have made allasites even more eager to get n with their own arts district.

Meanwhile, on the south side's air Park, the only extant 1930s xposition ground in America, New





David M. Schwarz's winning entry for the Dallas Arena (above); the American Beauty Mill (left), a mill from 1912 that has been converted into 80 loft apartments.

York architect Wendy Evans Joseph is designing the Women's Museum: An Institute for the Future. Within the shell of a 1909 structure that has been a cattle barn and opera house, she has created a dramatic three-story space surrounded by exhibits on such topics as diversity, women's movements, and women in the arts. Many will be computerized and incorporate the latest telecommunications. The $20 million project is privately funded and will open in October 2000.

Fair Park is both a National Historic Landmark and a local treasure, yet except for three weeks during the State Fair every October it remains eerily quiet. Dozens of schemes have been presented for reviving it, some of which have produced improvements to buildings and grounds—but not a new vision for the park.

These problems mirror those of the rest of South Dallas, which is poor, black, and neglected. A recent study showed that many South Dallas residents drive 25 miles to shop. Ninety percent of the city's new jobs are north and west of downtown. The imminent arrival of a Wal-Mart and an Albertson's supermarket may change the scene, but the economic imbalance between north and south remains one of Dallas's oldest and most intractable problems. After the revitalizing of downtown, it may be the city's most important challenge. ■

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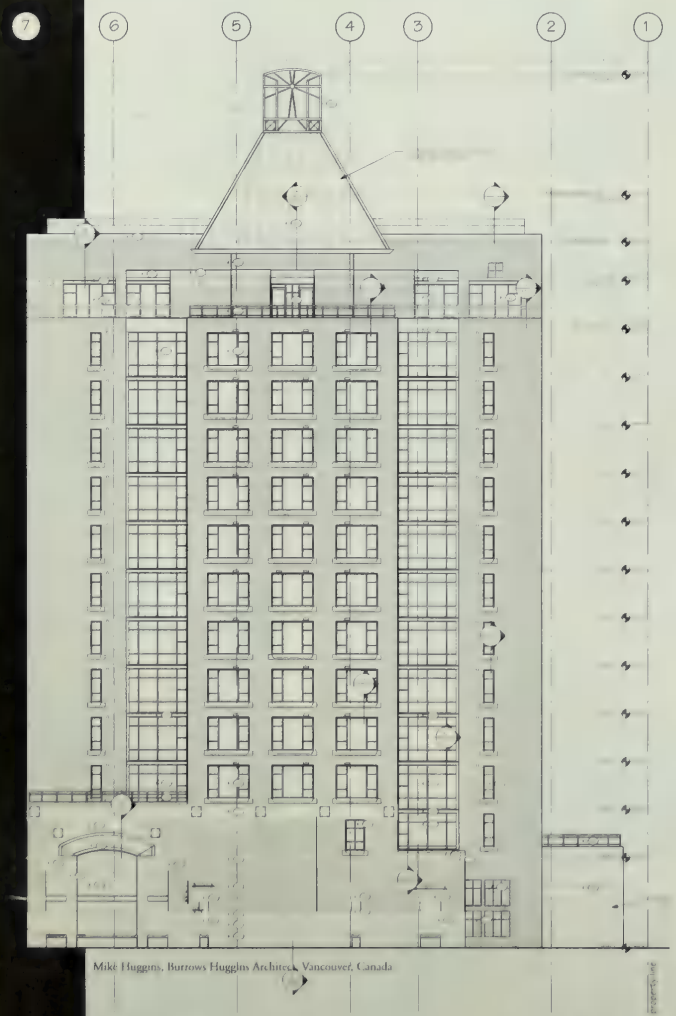
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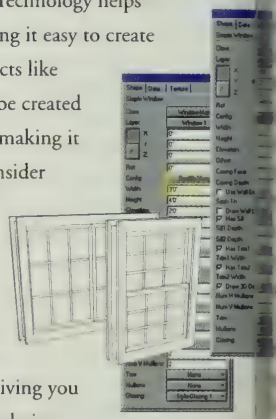
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CHANDIGARH 50 YEARS LATER: A PLANNED CITY AT A CROSSROADS

alf a century has gone by since Le orbusier and his team began to esign Chandigarh as the new state apital of Punjab in Northern India. ne city was to be a showpiece of ne newly independent nation, symolizing Prime Minister Nehru's sion of modernization for a postolonial democracy committed to ecularism. The milestone was arked in January when critics, rchitects, students, and others ame from around the world to Celebrating Chandigarh: 50 Years f the Idea," a conference on the ast, present, and possible futures f one of the most daring urban xperiments of the 20th century.

One of the conference's high oints was a discourse by K. R. arayan, the president of India, on rchitecture and urbanism and their ocial impact. In addition, history as brought alive by people directly nvolved in Chandigarh's founding: rchitect Balkrishna Doshi revealed ne depth of Le Corbusier's insights nto India, while engineer Mahendra aj recalled the construction proess and the important role played y P. L. Varma (chief engineer of unjab), the main client.

But the discussions were not lways adulatory. There were many ebates over and criticisms of the rban plan, representing different ocial and economic perspectives: ome Indians call Chandigarh the green city" and think it the best lace to live in India, while others onsider it a lifeless garden suburb n a regimented grid plan.

The preservation question

Chandigarh today is at a crossoads. Critics argue that it is all too oned and controlled, that the time as come to open it up more to lensification (read developers). This, ome people say, will create a more rbane, stimulating place. Defendrs warn that deregulation will lead rapidly to the sort of uncontrolled laissez-faire mess that characterizes most Indian cities: overcrowding, noise, and destruction of nature. Chandigarh is now confronted by the forces of migration from country to city, privatization in the economy, and globalization as a pervasive force.

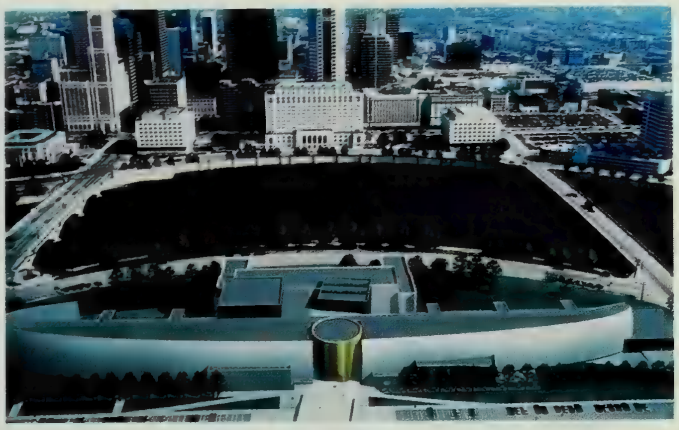
On the other hand, the capitol complex has never looked more splendid, though it is missing a key piece: the Governor's Palace, which Nehru canceled because he considered it too "undemocratic." For the conference, a full-scale replica of the palace, including the inverted crescent form on top shown in Le Corbusier's sketches, was constructed overnight out of bamboo scaffolding and fabric.

Still incomplete

The capitol is a sort of cosmic and political landscape—a piece of "land art" before its time—in which the Parliament, High Court, and Secretariat are dynamic sculptural forms, conversing with one another and guiding the eye toward the foothills of the Himalayas. Missing is the Governor's Palace, with its foreground of artificial valleys and waterways, which is essential for the effect and scale of the rest. It should now be built, but as a place for exhibitions and cultural events, even a world center for seminars on modernization, the city, and nature.

Chandigarh is still in its infancy. Now is the time to consider what can change and what should be protected. The capitol complex should be completed and given World Heritage status. As Chandigarh matures, the capitol is likely to come into its own as a great social landscape conception. It is part of India's—and the world's—spiritual and cultural heritage, a timeless and universal idea.

William J.R. Curtis



ISOZAKI DESIGNS A CENTERPIECE FOR THE CAPITAL OF OHIO

The Center of Science and Industry (COSI) in Columbus, Ohio, has embarked on an ambitious project that will result in a state-of-the-art facility designed by Japanese architect Arata Isozaki and a new role as the focus of redevelopment in the state capital.



Financed with $125 million in public and private funding, the new COSI, slated for completion in November, will replace an older facility opened in 1964. The new 320,000-square-foot structure is sited on one of the best pieces of land in Columbus: 17 acres on the banks of the Scioto River, directly across from the downtown area.

Isozaki's design utilizes a portion of an older structure—a high school built in 1924 that faces east on the riverbank—as a secondary entrance and a space for a restaurant and offices. The new building—an oblong, boatlike shape—will stretch behind the old school, with a main entrance on the west side. According to the architect, the two entrances look to "the past—memories of city life—and something new, a look into the future."

The building's shell is made of 60-by-10-foot, light gray precast-concrete panels—the largest Isozaki has employed in a design—while stainless-steel joints between the panels reflect the sun to give the surface some animation.

The interior is organized around a central circulation spine (below), which travels the entire 960-foot length. Exhibition areas, two theaters (one an IMAX), and a skylit atrium are all accessible from the central corridor. To ensure that the museum's layout is clear to visitors, the exhibition areas off the spine are divided into seven "learning worlds," self-contained environments with myriad hands-on activities; for instance, in the "Gadgets" area, children can swing in a harness to demonstrate the properties of a pendulum.

COSI will be the central landmark of $2 billion worth of development in Columbus. The city is building an arena and 90 adjoining acres of new residential, retail, commercial, and entertainment facilities. Also in the works are new shopping districts and expansions of the zoo and convention center.

Soren Larson



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AFTER TERRIBLE STAGNATION, VITALITY RETURNS TO CALIFORNIA TOWN

ne redevelopment of obsolete and ften heavily polluted urban indus- ial properties, called brownfields, as been a cherished goal for those ho are concerned about urban prawl and looking to a postindus- ial future. Several new projects in meryville, California, are providing ne vision of what that future could ok like.

Located between Oakland and erkeley, Emeryville was long known r heavy industry, railyards, and eat-processing plants. By the 970s, industrial restructuring and conomic stagnation left 60 per- ent of the city's property vacant or nderutilized, and created problems uch as contaminated groundwater.

As in many other depressed reas, artists were among the first resettle Emeryville. They were fol- owed by developers, attracted by ne city's location at the nexus of everal freeways, and high-tech ompanies such as Sybase, who ere lured by the proximity to the niversity of California at Berkeley ampus. What resulted was an ften curious amalgam of suburban levelopment formulas jammed ogether at urban densities, with big ox "power centers" next to housing nd corporate campuses abutting onverted warehouses.

The current boom shows no ign of abating. Officials estimate hat one million square feet worth of construction is currently under way in this 1.2-square-mile city. Recently approved projects include Pixar Village—a 400,000-square-foot headquarters campus for the Steve Jobs–led computer animation studio, designed by Bohlin Czywinski Jackson and master planned by Peter Walker Associates—and the Jerde Partnership's Emeryville Town Center, a mixed-use project integrating a hotel, housing, and 400,000 square feet of retail and entertainment space, centered around a "main street."

The most dramatic development has been the first building of the Chiron Corporation's 14-building research campus, by Legoretta Arquitectos (above). With Legoretta's bold massing and trademark bright color palette, the biotech lab dominates the surrounding landscape, providing a symbol for Emeryville's new era. *Eric C. Y. Fang*

AS CONDE NAST PREPARES TO MOVE, ITS OLD BUILDING GETS A NEW LOOK

Determined to convert a "boxy, boring" 24-story midtown Manhattan office building into a new showpiece for Madison Avenue, Roger Duffy, AIA, a partner at Skidmore, Owings & Merrill, has designed a renovation and addition to an existing structure that promises to add an unusual new sculptural element to the skyline and a striking street-level presence.

The building is currently the headquarters for Condé Nast, which, in a much-publicized move, will be relocating in August to new digs on Times Square (two blocks away from SOM's other major midtown project, a 50-story tower code-named Site One). Duffy's design calls for 110,000 square feet of additional office space and a new two-story lobby with a dramatic glass entry zone.



In a 22-foot-wide space between 350 Madison and the adjacent building to the south, the entry zone will be lit from below, creating a volume of amber light reflected up from a basement-level pool. A glass bridge leading from the entry door to the lobby will appear to float above the pool, Duffy says. A glass elevator—visible from the outer vestibule but approached from the lobby—will be added to serve the higher floors, while new retail space at street level will be enclosed by glass panels that wrap around into the lobby. The rooftop addition will be cantilevered over the glass entry zone.

To blend the old and new elements, a continuous metal mesh surface, beginning at the lobby level, will be wrapped around the entire structure. Panels of gray-striped glass within the wrap will allow tenants to see out the original windows, but from the outside, the wrapper will appear to be part of a continuous plane. "The idea," Duffy says, "is to avoid the appearance of punched windows." The renovations are expected to be complete in early 2000 for an as-yet-undetermined tenant. *Julie Moline*

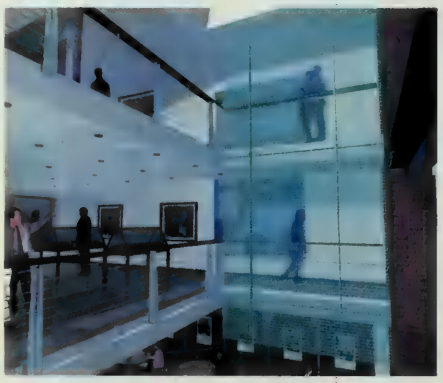
MLK IS NEXT FOR D.C. **The next major memorial in Washington, D.C., will be one honoring Dr. Martin Luther King Jr. Thirty-six years after King stood on the steps of the Lincoln Memorial and gave his "I Have a Dream" speech, Congress has authorized funds for the project and an international competition is being held for the design of the memorial. With a theme of "The Man—The Movement—The Message," the competition program challenges entrants to convey King's commitment to the civil rights movement, his spirituality, and the tragedy of his assassination.**

The project is being run by Alpha Phi Alpha, the country's oldest black fraternity, of which Dr. King was a member. The competition will be open to all disciplines and ages and will be administered by the Washington-Alexandria Center for Architecture, the same group that oversaw the Vietnam Veterans Memorial and the Women in Military Service to America competitions. A jury has yet to be finalized. The registration deadline is October 15, with submissions due by December 1. Winners will be announced next year on January 17, Dr. King's birthday. Registration information can be found at www.mlkmemorial.org. ***Ellen Sands***

AUSCHWITZ SYNAGOGUE TO BE RESTORED, WITH A NEW VISITORS' CENTER

Thousands of tourists a year visit Auschwitz and Birkenau, the death camps in Poland where four million people, including one million Jews, were murdered by the Nazis. The remains of these killing centers are deeply disturbing, though they merely hint at the inconceivable horrors they contained.

Displayed within Auschwitz,



now a National Museum, are barracks and crematoria, filled with thousands of shoes, prosthetic devices, false teeth, and prisoners' hair. Some of the torture chambers are intact, as are the gas chambers.

Yet before World War II, the nearby Polish town of Oswiecim enjoyed a long legacy of Jewish life, culture, and history dating back to the year 1250. Preceding the Holocaust, this local Jewish community numbered over 8,000, and 19 synagogues were dotted across the town. Today, one Jewish man, age 78, resides in Oswiecim.

Building a foundation

In 1995 a Manhattan-based foundation was formed, the Auschwitz Jewish Center Foundation, with the aim of saving the only remaining synagogue in Oswiecim and funding a cultural facility memorializing Jewish life in Eastern Europe: a place where visitors could learn not only how Jews died but how they had lived.

The foundation's architect—Arthur Rosenblatt, FAIA, of RKK&G Museum and Cultural Facilities Consultants—was the founding director of the United States Holocaust Memorial Museum in Washington, D.C. He is quick to point out the significance of the project's modest scale. "This is not the restoration of a grand old synagogue in a large city. [It] is the only example of the reconstruction of a simple synagogue in a small town in Poland, providing a place for people to pray after visiting the camps." Rosenblatt also sees the project as an economic rejuvenator for Oswiecim: "The townspeople are hopeful for tourism and have become zealous partners in the effort. It's an opportunity for Polish entrepreneurship."

The work will take up to two years and cost as much as $10 million. The initial phase (above right) involves the renovation and rededication of the Lomdei Mishnayot Synagogue, the construction of an adjacent visitors' center, and the restoration of the town square. Currently a parking lot, Skarbek Square was where local Jews were rounded up during the occupation before being deported to ghettos and death camps.



Until recently, the synagogue building was used as a carpet warehouse, but a recent government program established to provide restitution for seized Jewish property returned it to the closest active Jewish community, in Bielsko-Biala. Title has been transferred to the foundation, and the building is now listed in the historic registry.

The red brick visitors' center was designed as a contemporary interpretation of a local style. It will house exhibition and contemplation space, a kosher cafeteria, and a lecture hall. A stone "wall of memory," with personalized dedications and a hanging glass wall (left) engraved with names of former Jewish communities, counteracts the anonymity of Auschwitz and Birkenau.

Susanna Sirefman

NEW URBANISM: THE DEBATE GOES ON American schools of architecture have been reluctant to embrace New Urbanism, typically viewing the movement as an appalling, kitschy revival of the kind of sentimental architecture that belongs only on Hallmark cards. Meanwhile, the canny New Urbanists, led by the team of Andres Duany and Elizabeth Plater-Zyberk (see page 22) in Miami, are successfully conquering the media and the world of real estate, and are to some extent rewriting the nation's zoning codes. The opposing sides were brought together in March at the Harvard Graduate School of Design for a summit, "Exploring (New) Urbanism," led by Alex Krieger, Harvard's chair of planning and urban design. The conference sold out almost immediately; most leading New Urbanists participated, and other voices included the mayors of Milwaukee, Las Vegas, and Cincinnati; congressman Earl Blumenauer of California; and various critics, professors, and architects.

The intended climax, however, was a flop. This was a debate between Duany and Dutch architect Rem Koolhaas—meant to be a pro and con on New Urbanism, except that Koolhaas never stated a position. New Urbanist Dan Solomon described Koolhaas's technique as a rope-a-dope strategy: as Ali, he hung on the ropes in hopes that Duany, as Frazier, would punch himself into exhaustion. The result was that the conference had nobody to articulate an alternative vision of the future of the built environment. Many alluded to such a vision, but it was perhaps not a vision of traditional urban order, but a celebration of the chaos of democracy. Both the New Urbanists and what we might call the New Chaoticists saw themselves as champions of democracy: the New Urbanists for the democracy of popular taste, the Chaoticists for unfettered entrepreneurialism. Sprawl, however, had no defenders. It was also apparent that both the New Urbanists and the academic community are aware of two issues: finding ways to bring New Urbanist principles into the city, where they can revive decayed neighborhoods, rather than operating at the rural fringe; and keeping New Urbanism marketable to a wide public, without resorting to Disneyland-style design. The latter issue was encapsulated when Duany said he regarded style as "camouflage" for the underlying principles of greater density, mixed income, and mixed use. ***Robert Campbell***



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IN VIEW OF THE PYRAMIDS, WESTERN PIZZAZZ HITS THE SAHARA

An ice rink within sight of the Great Pyramids of Giza seems improbable enough, but it's only one of the attractions in a new $100 million-plus theme park and entertainment complex in the Sahara desert near Cairo.

Called Dreamland, the project is the largest and costliest of its kind in the Middle East. The first phase—three-quarters of what will eventually comprise a 102-acre, 3.2-million-square-foot theme park, including typical amusement rides and food and retail attractions—opened in January. The developer, Ahmed Bahgat Fatouh, an engineer and one of Egypt's wealthiest industrialists, is confident enough to have ordered working drawings on the second phase to proceed.

John M. Ciocci, a senior designer with Forrec Ltd. of Toronto and Dreamland's project manager, says his firm's 1996 master plan incorporated an irrigation system fed by the Nile River, which allowed an 18-hole golf course to be built and about 1,000 mature palm trees to be planted. He also says Fatouh preferred a Western-style park to the Egyptian archaeological themes Forrec originally proposed. "We estimate the park will attract about four million people a year. There is a population of 40 million to draw from in the Middle Eastern region, including Cairo, one of the world's most highly populated cities," notes Ciocci.

The second phase, to be completed in 2001, includes a 500,000-square-foot shopping and resort center—with retail tenants, cinemas, office space, and two hotels—that will be connected to the theme park by a main retail street and plaza. This phase will add more stores, a food bazaar, an IMAX cinema, and the ice rink.



The various parts of the development will share more than 3,000 parking spaces; a four-lane highway and a direct bus service connect the complex to Cairo.

The theme park and shopping resort/center, along with a huge housewares outlet being built nearby, are the centerpieces of a 5,000-acre residential and retail project called 6th of October City that Fatouh is developing.

Current visitors to Dreamland encounter a 90-foot-high man-made mountain and waterfall, which dominates the theme areas and culminates at the base in a small lake that hosts boat rides. A restaurant on top offers the best views of the Pyramids, although they are visible from any point in the park.

Ciocci says the water features heighten Dreamland's oasis character, and the colorful playgrounds, landscaped grounds, ponds, fountains, and formal gardens serve to relieve the austere aridity of the surrounding desert. *Albert Warson*

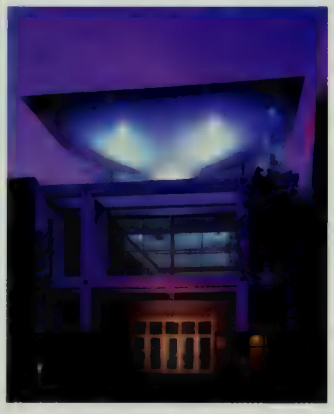


ART MUSEUMS IN THE CAROLINAS FIND SUPPORT AND NEW HOMES

two cities in the Carolinas, potent ublic and private financial support as led to the installation of art stitutions in renovated downtown uildings.

In January, the Mint Museum Art, located in a mostly suburban rea of Charlotte, N.C., opened the owntown Mint Museum of Craft + esign in a renovated department ore. Nearby, the first artists will rrive in September for residencies t the Tryon Center for Visual Art, hich will open in a renovated othic Revival church. The projects re nestled in the shadow of the ank of America (formerly Nations-ank) Corporate Center, the 61-tory Cesar Pelli tower housing the ank that paid for both museums.

The new Mint Museum occu-ies 16,000 square feet in a build-ng it shares with an extension of he University of North Carolina at Charlotte's College of Architecture, which will help organize design exhibitions. The museum might later expand into office space on an



upper floor, says director Mark Leach. "We've got nothing short of a stunning solution, a wonderful sense of openness and connectedness," says Leach of the $10 million renovation, designed by Charlotte's Lee-Nichols Architecture. "No matter where you are in the building, you can see [other sections]."

The Tryon Center enjoys a similarly expansive view, at least on the south side, from the first-floor public gallery up to the rafters. The former stone-walled Presbyterian church, designed 75 years ago by James McMichael, was damaged in a 1984 fire, and the local Fishero McGuire Kruger Architects left some scarred brick exposed. The firm adorned the new construction, which staggers back along three levels on the north side, with two-tone, quarter-sawn oak doors and accents. Gothic arches house new windows, and skylights illuminate painting studios in the $7 million project.

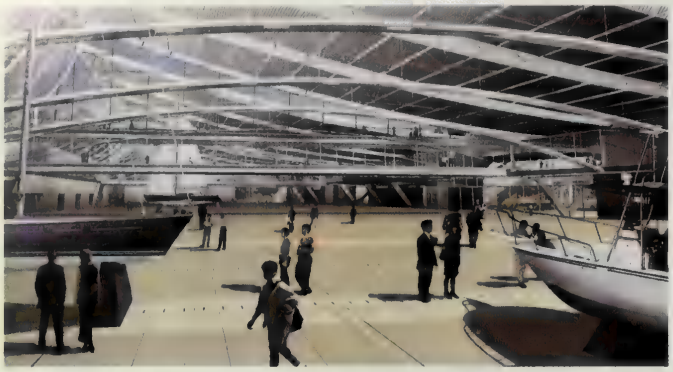
Meanwhile, 90 miles south, Columbia, South Carolina, recently welcomed the Columbia Museum of Art to its new home in a renovated former Macy's (left). The city donated the building for the project, Richland County pitched in another $3.5 million, and the museum raised the balance of the $16 million cost.

As with the Charlotte projects, the Columbia renovation entailed completely gutting the original structure. In addition, the Columbia project involved tearing down part of an adjacent, also abandoned department store for a new entrance marked by a neo-Palladian arch. "Inside, we wanted people to forget where they used to buy underwear," says architect Ashby Gressette of the local Stevens & Wilkinson office.

The firm completely reconfigured the interior around the generous 28-foot bays. The museum's chief curator, Bill Bodine, says the space is ideal: "This building is as good as it possibly can get for adaptive reuse." The museum moved from 30,000 square feet in a nearby historic home to 85,000 square feet in the former store, with about 45,000 available for expansion.

Chuck Twardy





VINOLY'S CONVENTION CENTER TO ENLIVEN PITTSBURGH RIVERFRONT

On a prime downtown site overlooking the Allegheny River, Rafael Viñoly is designing a new convention center for Pittsburgh that will echo the look of one of the city's salient features: its many suspension bridges.

Viñoly won the competition to design the David L. Lawrence Convention Center with a plan that features a metal roof structured as a suspension bridge and draped over a column-free space. The roof's curved surface will be coated by water from the recirculated air cooling system to give it a glittering quality; at night, the transparent building will be lighted to create a glowing presence.

At the riverside edge of the building, a cantilevered, public terrace will reach to the bank, giving visitors an opportunity to view the city as a whole. The main public concourse of the building—also facing the river—will be linked by a bridge to a public plaza on nearby Penn Avenue. On the city side, a public promenade on the upper level will funnel pedestrians from the streets into the building and toward the river. The main exhibition hall opens to the concourse and has sweeping views of the river, while meeting rooms and conference facilities are organized in two bands at either edge.

The 1.4 million-square-foot center, being built at a cost of $218 million, is scheduled for completion in 2001. *Soren Larson*

HUGE MALL OPENS IN ENGLAND AS EUROPE MOVES TO HALT ITS TYPE

Bluewater, in Kent, just southeast of London's orbital motorway, the M25, is a huge and controversial shopping center—and likely the last of its kind to have been built in Europe.

The $560 million center (over $800 million including transportation infrastructure) is already an anachronism. It was granted planning permission five years ago, before European governments decided to clamp down on out-of-town shopping due to the devastation it caused to nearby town centers and communities. Grants have already been allocated to towns near Kent to enable them to strengthen their cores.

Nevertheless, Bluewater opened on schedule on March 16. Texas architect Eric Kuhne, employed by the developer, the Australian company Land Lease, insisted that "we've really designed a city rather than a retail destination." For Bluewater, his first U.K. project, Kuhne's team was made up of 500 architects and engineers, including four U.K.-based firms—Benoy, Brooker Flynn Architects, BDG McColl, and the U.K. branch of RTKL—as well as the Detroit-based JPRA.

Kuhne's influence is obvious. Bluewater is on a Texan rather than a U.K. scale, with 1.6 million square feet of retail space—matching that of London's shopping mecca, Oxford Street. Its 13,000-capacity parking lot is second in the country to Heathrow Airport's. Bluewater's anchor stores are located on the ends of three two-story malls: one with a landscape design theme (and the biggest conservatory in the U.K.); an upmarket guild-themed mall; and the main retail drag, which connects the two. Each has custom-designed street furniture and civic art.

The complex is built in a former chalk pit, now landscaped with lakes, parks, and pedestrian-friendly "town squares." It offers visitors shopping, refreshment, and cinemas in an environment flooded with natural light and fresh air.

Design debates

Acutely aware of the need to repackage this American-style mall for its U.K. context, Kuhne drew on a wide variety of sources from English history, literature, and art—for instance, using poetry in friezes above shop doors—with mixed success, according to some local critics. Purists believe the rampant commercialism wouldn't sit well with the quoted authors and artists. U.K. retailers, for their part, are eager to see whether Kuhne's new creation, which is in many ways a dinosaur, will survive.

Architects have also weighed in. In January, Rem Koolhaas gave a much-publicized talk at the Architectural Association in London and cited statistics gathered by a research team at Harvard indicating that traditional retail shopping was entering a terminal decline. "[Retail] is a way that people have to personalize their lives," counters Kuhne. "With [the country having] the most disposable income and the most enlightened customer base ever, I find [Koolhaas's assertion] hard to believe." *Katherine MacInnes*

HARVARD TOWER EMERGES FROM THE ASHES **The long-lost tower of Harvard's Memorial Hall will be rebuilt this summer. The immense Ruskinian Gothic building was designed by Ware and Van Brunt in honor of Harvard's Northern (but, it is said, not Southern) Civil War dead. The tower, which rose more than 210 feet upon completion in 1878, was a Cambridge landmark for generations until a spectacular fire destroyed its mansard spire in 1956.**



The new tower (model at left) will cost about $4 million and is expected to be completed by the end of the year. The architect for the reconstruction is CBT/Childs Bertman Tseckares of Boston, with Maurice Childs the senior principal in charge and James McBain the project architect.

During the years following the fire, the architecture of Memorial Hall was so far out of fashion that no serious effort was made to rebuild it. But in the 1980s a major restoration of the entire building began. The vast dining hall and the 1,100-seat wood-and-iron Sanders Theater were restored under the direction of Venturi, Scott Brown and Associates.

The late architectural historian Margaret Henderson Floyd researched the tower's complex design history for the reconstruction. Three different versions had been built, all of them designed by the original firm. Because the first was deemed too plain, in 1878 the architects added what they called a "skyline package" of cresting, finials, and narrow dormers. In 1897, they redesigned it again to accommodate the donation of a huge clock, changing the roofing to copper. The 1878 design was chosen for reconstruction because it best matched the detail and polychrome roofing of the rest of the building. ***Jonathan Hale***

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TOWERS GO UP IN ARGENTINA TO COMBAT HOUSING SHORTAGES

On a government-owned site in Cordoba, Argentina, that was neglected and then occupied by homeless people for many years, local firm Novillo y Asociados SRL has designed a complex of five towers that will hold 300 apartments, providing much-needed residences.

The firm won a national competition, staged by the government, in which designs were submitted for a 2.7-acre lot, with at least 10 percent dedicated to commercial activities. In Novillo's scheme, priority is given to open spaces, as the site is one of the few undeveloped plots left in the crowded neighborhood. The towers are being built at the maximum height permitted in order to keep as much ground space free as possible. Four of the octagonal towers stand 16 stories; a fifth, shorter than the others and designed with a different crown, is intended to give an image of diversity. The complex is being built using what the architects call "traditional and rationalized technologies": reinforced concrete and traditional masonry walls, covered with plaster to create plain white facades.

The towers are sited in a curving line along a central avenue, with public spaces along their bases: a parking lot with a garden on its roof, a piazza surrounded by shops, and a reflecting pool, which serves as a historical reference to the creek that used to run through the site. *Soren Larson*

CHICAGO'S HISTORIC RELIANCE BUILDING TO BE REFURBISHED AS A HOTEL

After decades of neglect and uncertainty about its marketability, Chicago's historic Reliance Building (D. H. Burnham & Co., 1895) will reopen this fall as the 122-room Hotel Burnham, operated by the Kimpton Hotel Group of San Francisco. The city of Chicago acquired the building by eminent domain in 1994 and devoted $6.6 million to the restoration of its terra-cotta skin, executed by the design/build team of McClier/UBM.



McClier repaired or replaced 3,000 pieces of terra cotta, installed a cast-aluminum cornice (the original terra-cotta one had been removed in the 1940s), and replaced all windows.

The firm is now working with Antunovich Associates, the architects converting the interior to hotel use, to restore the original elevator lobby and the street-level storefront.

As long as the space across the street remains undeveloped, hotel guests will enjoy an expansive view north to the marquees of the Oriental and Chicago theaters and the river beyond. State Street pedestrians will enjoy an unobstructed view of the newly gleaming Reliance Building.

The prospect of losing that "amenity," if and when the neighboring site is developed, does not seem to concern the parties involved. "There's now a higher level of interest in making the right urban planning decisions in Chicago than there had been in the past," suggests Ed Woodbury, the vice president of McCaffery Interests (which with Mansur & Company and Granite Development Corporation formed a limited partnership as Canal Street Hotel Partners to develop the project). "I think the city will do the right thing on that block, and keep the Reliance Building and other neighbors in mind." *Thomas Connors*

WAYNE BERG, FAIA **The design world has lost an architect of prodigious talent: Wayne Berg, FAIA, died February 25 at age 52 after a protracted battle with brain cancer. He left a series of competition- and award-winning projects now or soon to be under construction; these will become his final legacy to American architecture.**

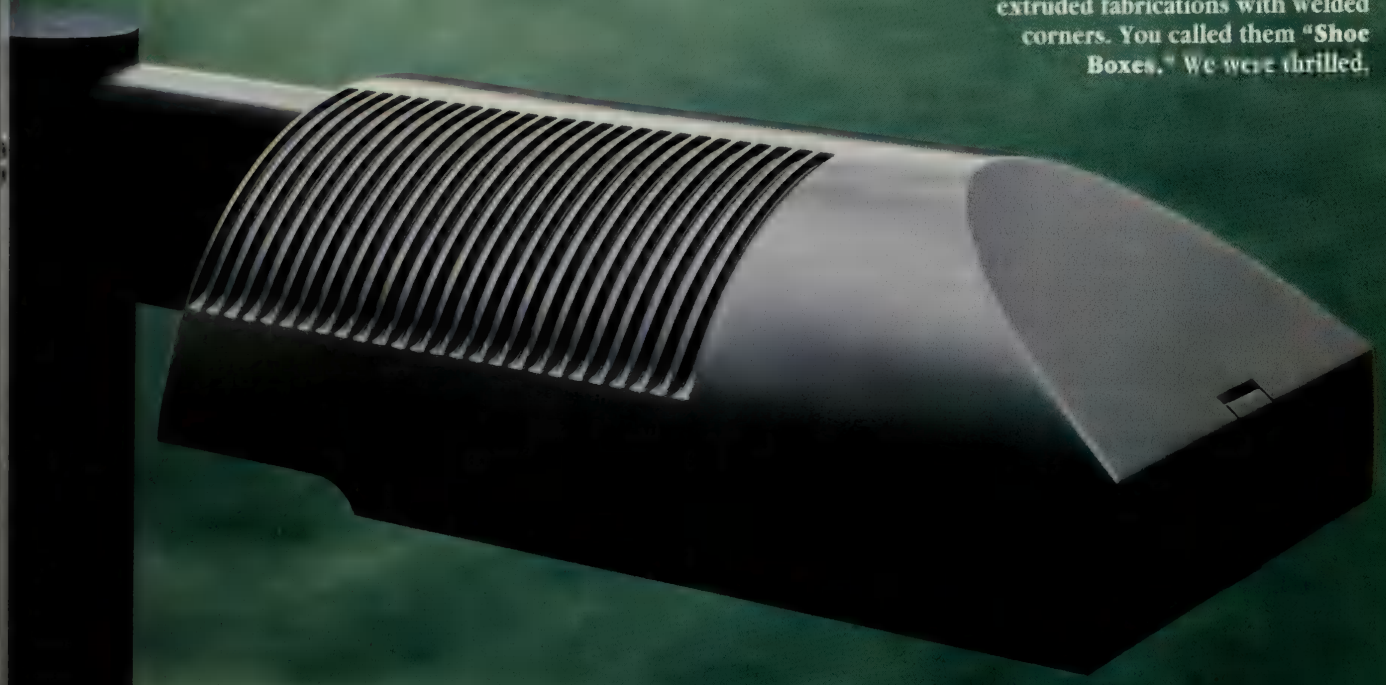
Berg's career spanned three decades and two coasts. Trained at Montana State University, he ventured first to the West Coast, where he worked with the Bumgardner Partnership in Seattle and then with Backen Arrigoni & Ross in San Francisco. In 1974 he moved to New York and worked in the office of Robert A. M. Stern before founding his own firm in 1978. In 1987 he joined Pasanella + Klein Stolzman + Berg Architects P.C. as design principal. Always generous with his time, Berg contributed greatly to the architecture culture in New York City as an assistant adjunct professor at Columbia University, and as vice president of the AIA New York Chapter and chair of its Design Awards Committee. Berg was elected to the College of Fellows of the AIA in 1995.

His architecture was rooted in two fundamental principles: the articulation of functions through the assemblage of bold, primary volumes of contrasting materials, and the celebration of materials, texture, and craft through detailing. These principles can be seen in such projects as the Gallatin County Detention Center in Montana (1984), the addition to and renovation of the Reed Library at the State University of New York Fredonia campus (1992), and the Education & Development Center at Clinch Valley College of the University of Virginia (1997). In the last several years his hand was behind five winning competition entries, including Stabile Residence Hall at Pratt Institute, the Williamsburg Community Center in Brooklyn, and the Children's and Youth Wing at Brooklyn Central Library.

Berg will be remembered as a designer who brought classical Modernist principles to a new level of relevance for our time. He is survived by his wife, Ann Hutchens Berg, along with his parents, a sister, and a stepson. A memorial service will be held April 14 in St. Paul's Chapel at Columbia University. ***Margaret Helfand, FAIA***

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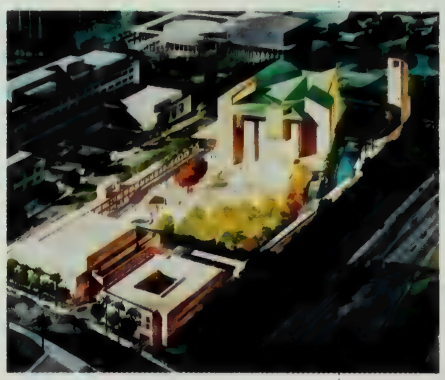
NEWS BRIEFS

Trouble at Taliesin The Taliesin Preservation Commission, the nonprofit group overseeing the restoration of Frank Lloyd Wright's former home and studio in Spring Green, Wisconsin, is in default of an $8 million loan from the state. The culprits: unforeseen construction difficulties and the high cost of refurbishing the complex, overly optimistic estimates of the number of visitors, and shortfalls in funding from other sources. State officials are resigned to the default and will cover the debt with unexpended funds; meanwhile, Taliesin is looking into fundraising alternatives, new marketing initiatives, and new partnerships.

Museum mavens Two major European firms have been commissioned to design new museums. Zaha Hadid of London has won a competition to design the Center for the Contemporary Arts in Rome. The new center—on the site of a former military barracks—will house an art museum, an architecture museum, and a range of cultural services. Hadid's flowing, modulated design of structures with different heights interacts with the existing barracks and moves horizontally along the original military layout.

Meanwhile, Switzerland's Herzog & de Meuron has been tapped to design a new home for the M. H. de Young Memorial Museum in San Francisco's Golden Gate Park. At 270,000 square feet, the new de Young will be the firm's largest project in the U.S. Herzog & de Meuron will now submit a design to the trustees; construction isn't expected to begin until 2002.

Zumthor takes Mies The Mies van der Rohe Award for Architecture, given biannually, has gone to Swiss architect Peter Zumthor, whose art museum in Bregenz, Austria, was deemed by the jury to be the best building completed in Europe within the last two years. The award, worth roughly $50,000, will be presented April 16 at the Mies van der Rohe Pavilion in Barcelona.



Moneo's cathedral design.

Moneo moves ahead Work begins this month on Our Lady of the Angels, Rafael Moneo's new cathedral for the Catholic Archdiocese of Los Angeles. Part of a $163 million complex going up downtown, the cathedral will have space for 3,000 worshippers and will open onto a two-acre-plus plaza. Because the new cathedral's predecessor closed after earthquake damage in 1994, English firm Silvertown UK has been contracted (for $2 million) to provide seismic protection for the new structure. Silvertown's patented Andre bearings use a rubber component to accommodate up to two feet of movement.

Memorial service The General Services Administration is holding a competition to design a memorial on the site in downtown Manhattan where workers found an 18th-century African burial ground while constructing the new Federal Building. Five teams—consisting of architects, historians, and other professionals—will compete to design a 2,000-square-foot "interpretive center," explaining the

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significance of the site. The teams—each of which includes at least one African-American among its leadership—are led by Design and Production; Duckett and Associates/H. J. Russell & Co.; I.D.I. Construction Company; Promatech; and Studioworks U.A.I.

Sunny design Bernard Tschumi Architects has won a competition to design the new school of architecture at Florida International University in Miami. Tschumi, working with Bruno-Elias & Associates, will design the new $15 million school on a prominent site near one of the main campus entrances.

High rollers Manhattan's 55 Wall Street building, constructed in 1842 as a merchant exchange, was going to be restored as a hotel by the entrepreneurial Cipriani family. Now, after the Ciprianis backed out to devote time to other projects in New York, Regent International Hotels has stepped in. Under a design by M/G Architects, the landmarked Greek Revival building is being converted to the Regent Wall Street, a luxury hotel with rooms starting in the $450 range. The stunning,



UNM's Cancer Research Center.

34,000-square-foot grand ballroom—with its elliptical dome and a 2,700-pound chandelier—will be the centerpiece.

Foster's next foray Foster and Associates has won a competition for the headquarters of a reinstated London Assembly. Foster's design, a glazed, football-shaped building on the south side of the River Thames near the Tower of London and Tower Bridge, was chosen by the government over a proposed renovation of a landmark building in historic Bloomsbury.

Bridgework Rosales Gottemoeller & Associates of Boston, together with Steinman De Leuw Engineers of Baltimore, will design the new Woodrow Wilson Bridge in Washington, D.C. The $600 million bridge, which will replace an existing one, is the centerpiece of a five-mile-long, $1.8 billion project that also encompasses four adjacent interchanges in Virginia and Maryland. Construction of the twin-bridge, draw-span design begins in 2000.

RIBA's man Marco Goldschmied, managing director of the Richard Rogers Partnership, has been elected the next president of the Royal Institute of British Architects. Goldschmied says he wants to "re-establish a public understanding of what architecture can do." He will assume office in July.

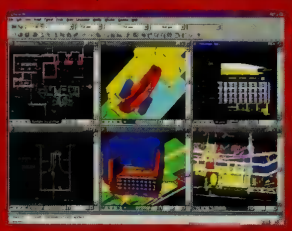
Local color Dekker/Perich/Sabatini, an Albuquerque firm, has imbued the new University of New Mexico Cancer Research Center with the vernacular style of the Southwest. Exterior materials and interior public spaces make reference to the desert's textures and colors. The building houses 33 bio-research laboratories, along with other labs and various research and academic facilities.

Taking the gold William Curtis, a frequent contributor to RECORD and author of several books on architecture, has been awarded the Tau Sigma Delta National Honor Society's 1999 Gold Medal in Architecture and Allied Arts. ■

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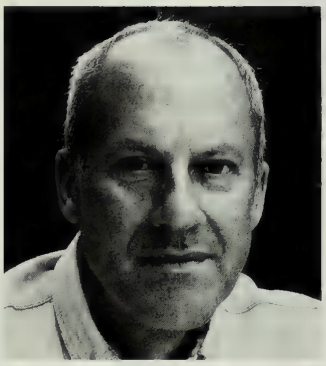
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ON THE WEB An interview with Sir Norman Foster and a directory of design professionals.

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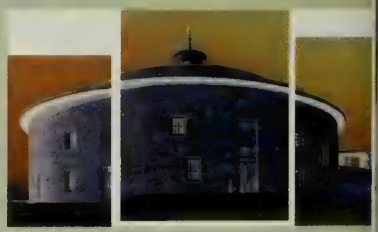
Sir Norman Foster talks about the Reichstag and the importance of research. Robert Ivy, FAIA, RECORD's editor-in-chief, recently traveled to London and met with Sir Norman Foster. During their talk, excerpted on RECORD's Web site, Foster described his office, which overlooks the Thames, as an "island in the middle of London. It has its own currency and its own internal language." The architects who work there come and go seven days a week, 24 hours a day. "In terms of its hours and its attitudes, [the office] is like a school of architecture," he says. The learning environment extends to the variety of projects. "We have tremendous stimulation in the projects we do. They are a pretty wide mixture, which is also fairly unusual."

One of the things that sets Foster's practice apart from others is his emphasis on research. "We do an incredible amount of research," he says. "It's instrumental in terms of breaking down barriers [between clients and architects]. I think it's a very revealing process. If you get it right, it commands a tremendous amount of respect from the people who commissioned you."

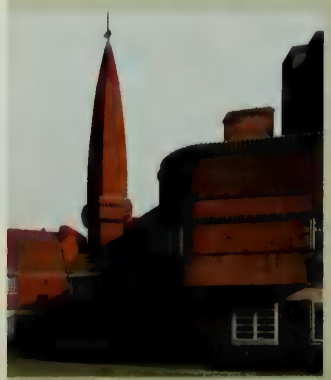
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WHAT IN THE WORLD? **This month's challenge tests your knowledge of one of the world's basic building types. Most architects wouldn't compete for an opportunity to design one of these buildings, but this example is unusual. Answer the questions correctly, submit the form, and you may be eligible to win a free one-year subscription to RECORD.**



SOLUTIONS **The building pictured in the #3-99 "What in the World?" challenge is "The Ship," part of the Spaarndam Housing Block in western Amsterdam. The third public housing facility in this district designed by Michel de Klerk, the structure was completed in 1917. The building's wealth of ornamentation is characteristic of the work of the Amsterdam School, sometimes called the Wendigen Group, whose members achieved prominence in Holland between 1918 and 1931. The movement's aim was maximum expression through opulence of form.**





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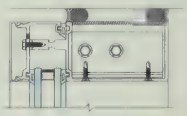
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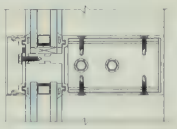
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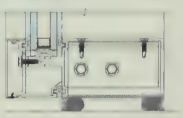
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DATESEVENTS

Calendar

oncept House 1999
ondon
hrough April 10
howcases sustainable, mass-roduced urban row house con-epts. Designs are by this year's inner, Pierre D'Avoine, and thers. RIBA Architecture Gallery. 4/171/580-5533.

luseum Architecture and hanging Civic Identity
os Angeles
hrough April 18
xplores the museum's role as a ital part of communities. Recent enters for art, science, and culture such as the Getty Center and the alifornia Science Center at Expo-ition Park) are featured. Fisher allery, University of Southern Cali-ornia. 213/740-4561.

ncounters: The Vernacular aradox of Israeli Architecture
lew York City
hrough April 21
his exhibition highlights the archi-ectural results of Israel's immigrant oots. Pratt Manhattan Gallery. 18/636-3517.

hotography and Transforma-ions: Venezia–Marghera
lontreal
hrough April 25
ifteen Italian photographers xplore the relationship of historic enice with the polluted modern ndustrial port of Marghera, which s nearby. Canadian Centre for rchitecture. 514/939-7000.

he Museum as Art: Photo-graphs by Elizabeth Gill Lui
Washington, D.C.
Through April 30
An exhibition of photographs of 20th-century museum architecture demonstrates the ongoing transfor-mation of the museum aesthetic. American Institute of Architects Head-quarters Gallery. 202/638-3221.

Marion Mahony and Walter Burley Griffin
Sydney, Australia
Through May 2
Explores the professional and spiri-tual journey of architects Mahony and Griffin, from their years in Frank Lloyd Wright's office through their 1920s and 30s Australian and Indian work. Powerhouse Museum. 61/2/217-0111.

Maya Lin: Topologies
Des Moines
Through May 23
Includes prints, drawings, models, and large-scale installations in wood, glass, and wax—all dealing with the ecology of landscape—by the creator of the Vietnam Veterans Memorial in Washington, D.C. Des Moines Art Center. 515/277-4405.

Bauhaus on the Carmel: Modernism in Haifa
Chicago
Through May 31
Photographs of residential, commercial, and civic Bauhaus-style buildings depict development in Haifa during the first half of the century. Atrium Gallery, Chicago Architecture Foundation. 312/922-3432.

Hospitality Design '99
Las Vegas
April 8–10
More than 500 exhibits and 18 educational sessions on hospitality design. Sands Expo and Conference Center. Call 888/200-8498 or visit www.hdexpo.com.

Thinking about Landscape
Cambridge, Mass.
April 9–10
A range of landscapes, from 17th-century French gardens to contemporary designs, will be evaluated through study of interdisciplinary fields: literature, geology, environmental history, and sociology. Piper Auditorium, Graduate School of Design, Harvard University. 617/496-8728.

Merchant Prince and Master Builder: Kaufmann and Wright
Pittsburgh
April 10–October 3
An exhibition exploring the belief shared by Frank Lloyd Wright and his client Edgar Kaufmann—for whom he designed Fallingwater in 1936—that "good design" had the power to change lives. Heinz Architectural Center, Carnegie Museum of Art. 412/622-3131.

1999 Eco Design Arts Conference
Eugene, Ore.
April 15–18
This year's theme, "Equity and Ecology," explores the important connections between social and ecological issues, and the critical roles played by artists, designers, planners, and community members in crafting cultures of social and ecological equity. School of Architecture and Allied Arts, University of Oregon. Call 541/346-0719 or visit http://gladstone.uoregon.edu/~hopes.

Peter Aldington's Garden and Classic Village Houses
London
April 17–May 1
Presented in this exhibition are a trio of 1960s garden houses by Peter and Margaret Aldington, whose work redefined the English country house. RIBA Architecture Gallery. 44/171/580-5533.

Big Soft Orange
San Francisco
April 17–June 25
This traveling exhibition, which inaugurates the California College of Arts and Crafts' Logan Gallery, features innovative designs for housing in the Netherlands by four young Dutch architecture firms. 415/551-9210.

Gardens of Today—History of Tomorrow: Landscape Design
Vienna, Austria
April 23–24
In this conference addressing landscape design at the end of the millennium and future trends, 12 European and American landscape architects will discuss their work. Atelierhaus, Academy of Fine Arts. Fax 43/1/3678-608 for information.

EnvironDesign3
Baltimore
April 29–May 1
This conference focuses on green design and building practices, as well as the tangible, inspirational benefits of the sustainable design movement. Hyatt Regency Hotel. Call 561/627-3393 or register online at www.isdesignet.com.

American Institute of Architects National Convention
Dallas
May 6–9
The theme of this year's AIA national convention is "Think Big, Make It Happen." Architects can earn all 36 Learning Units needed for AIA accreditation by attending seminars and exhibitor education sessions. Dallas Convention Center. For information on exhibiting at the convention, contact Hill, Holliday Exhibition Services at 617/572-3553. For information on attending, visit www.aiaonline.com/convention98.

L.A. Modernism Show
Santa Monica, Calif.
May 7–9
An eclectic assemblage of design and artwork of the past 100 years: Art Deco tables, Bauhaus chairs, 1950s loungers, Austrian glass, posters. The show traces history through the creations of graphic, industrial, furniture, and fashion designers and artists. Santa Monica Civic Auditorium. 310/455-2886.

1999 International ARCHIBUS/FM Users' Conference
La Jolla, Calif.
May 19–21
In 45 different sessions, attendees will discuss their facilities management activities and learn how others are achieving the best results. Hyatt Regency La Jolla. For more information call 617/338-1011 or visit www.archibus.com.

(continued on page 68)

Competitions

Presidential Design Awards
Entry/nomination deadline: April 8
The Presidential Awards for Design Excellence recognize work that has been sponsored, authorized, or commissioned by the U.S. Government and has been completed or in use between January 1, 1989, and January 1, 1999. There is no entry fee, and nominations are requested. Nominations are also requested for the Presidential Millennium Design Awards, which honor federal design projects completed in the 20th century that have made a significant contribution to the environment and quality of life in the U.S. Contact Thomas Grooms at the U.S. General Services Administration, 202/501-1888, or thomas.grooms@gsa.gov.

The Van Alen Institute Dinkeloo Fellowship
Submission deadline: May 7
A two-month stay at the American Academy in Rome will be awarded to the entrant who best demonstrates how architecture and technology can be environmentally conscious. Open only to those who have graduated or will graduate from U.S. architecture degree programs between May 1990 and September 1999. For a competition packet, call the Van Alen Institute at 212/924-7000, E-mail vanalen@vanalen.org., or write to 30 West 22nd Street, New York, N.Y. 10010.

California's Central Valley: Housing the Next 10 Million
Submission deadline: May 1
This ideas competition, focused on less-land-intensive housing models and urban planning implementation tools, will help local decision-makers deal more effectively with the projected growth of California's Central Valley. Open to students and professionals. Contact William Liskamm, AIA California Council, 916/448-9082, or visit www.aiacc.org.

Shinkenchiku Residential Design Competition 1999
Submission deadline: May 13
This brief requests a theater for 200 people on a square, surrounded by four-story buildings, in a city of 100,000. Entrants are asked to design a two-story block of approximately 6,500 square feet containing a theater, a bar/cafeteria, and shops on the ground level and a small library on the second level. The theater is to be complete with all necessary equipment and amenities. Open to students and professionals. Contact Shinkenchiku-sha Co., Ltd., 81/3/3811-9375.

Resort Concept Competition
Submission deadline: May 15
The San Francisco–based Valor Group is sponsoring a competition for the design of an environmentally sensitive, portable tent village. For more information, call 415/276-5958.

Ermanno Piano Scholarship
Submission deadline: May 31
Open to 1998 architecture graduates, this scholarship helps to further education through a six-month internship with the Renzo Piano Building Workshop in Genoa, Italy. The winner will also receive a $10,000 grant. Applicants must send an 8½-by-11-inch portfolio (maximum of seven pages in Italian, French, or English) to Renzo Piano Workshop Foundation, Via Rubens 29, 16158 Genoa, Italy.

Architecture + Energy: Building Excellence in the Northwest
Submission deadline: June 4
Administered by AIA/Portland and sponsored by the Northwest Energy Efficiency Alliance, this competition seeks successful integration of architectural design in commercial

(continued on page 184)

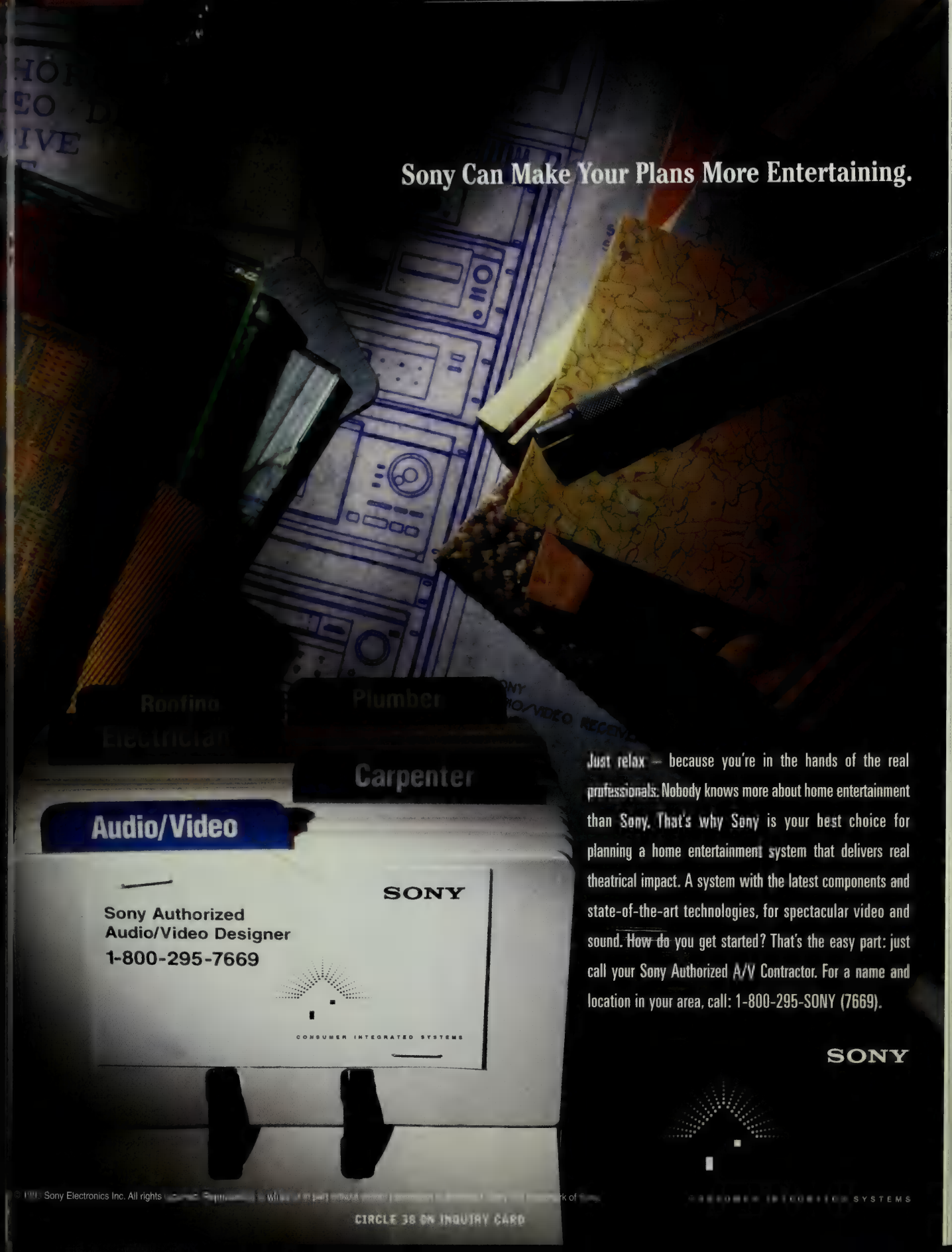
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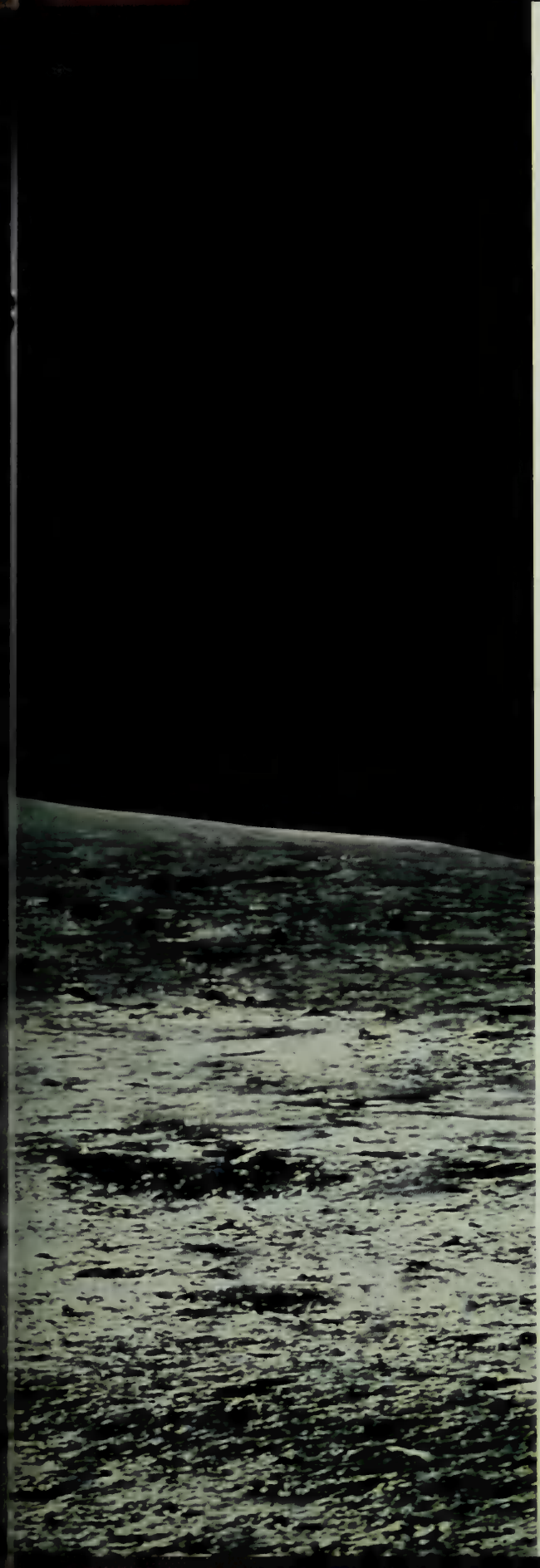
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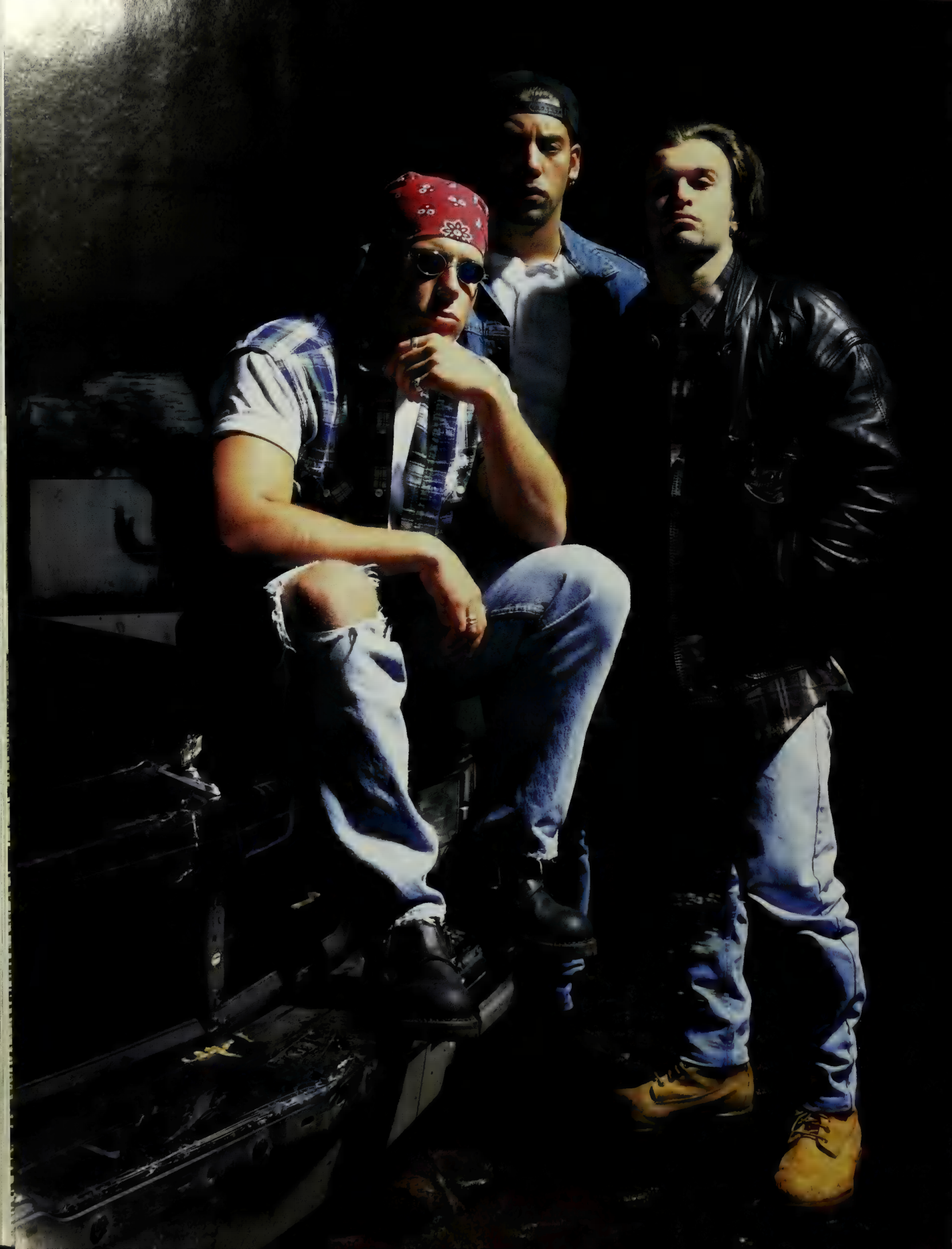
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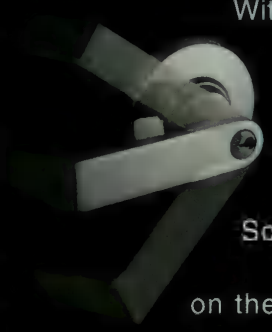
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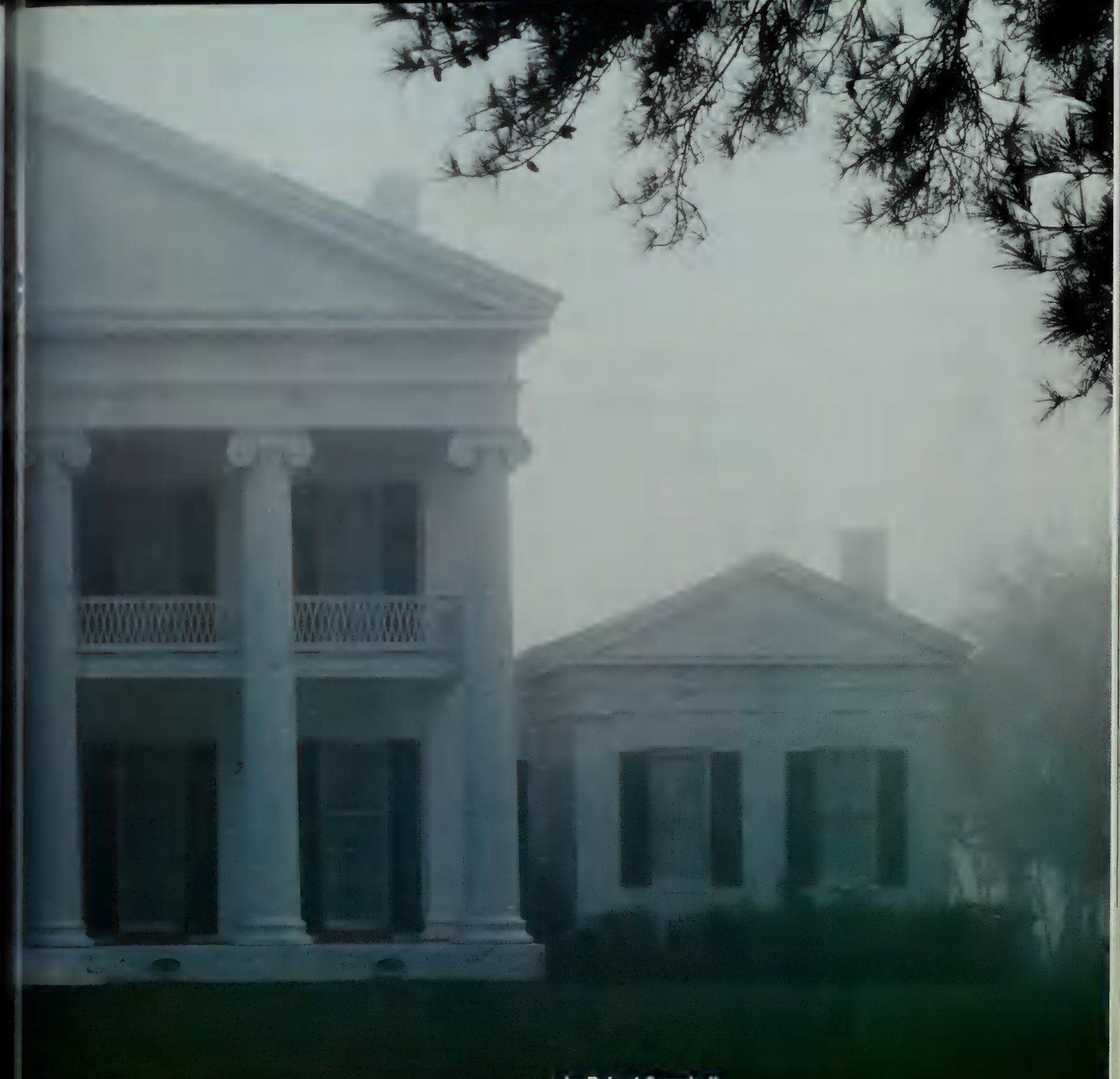
This message made possible through a grant from The Pew Charitable Trusts

CIRCLE 42 ON INQUIRY CARD



ESSAY: Is There an American Architecture?

ROBERT CAMPBELL QUESTIONS THE TRADITIONALLY ACCEPTED NOTIONS OF TIME AND PLACE IN AN INCREASINGLY MULTICULTURAL WORLD.



by Robert Campbell

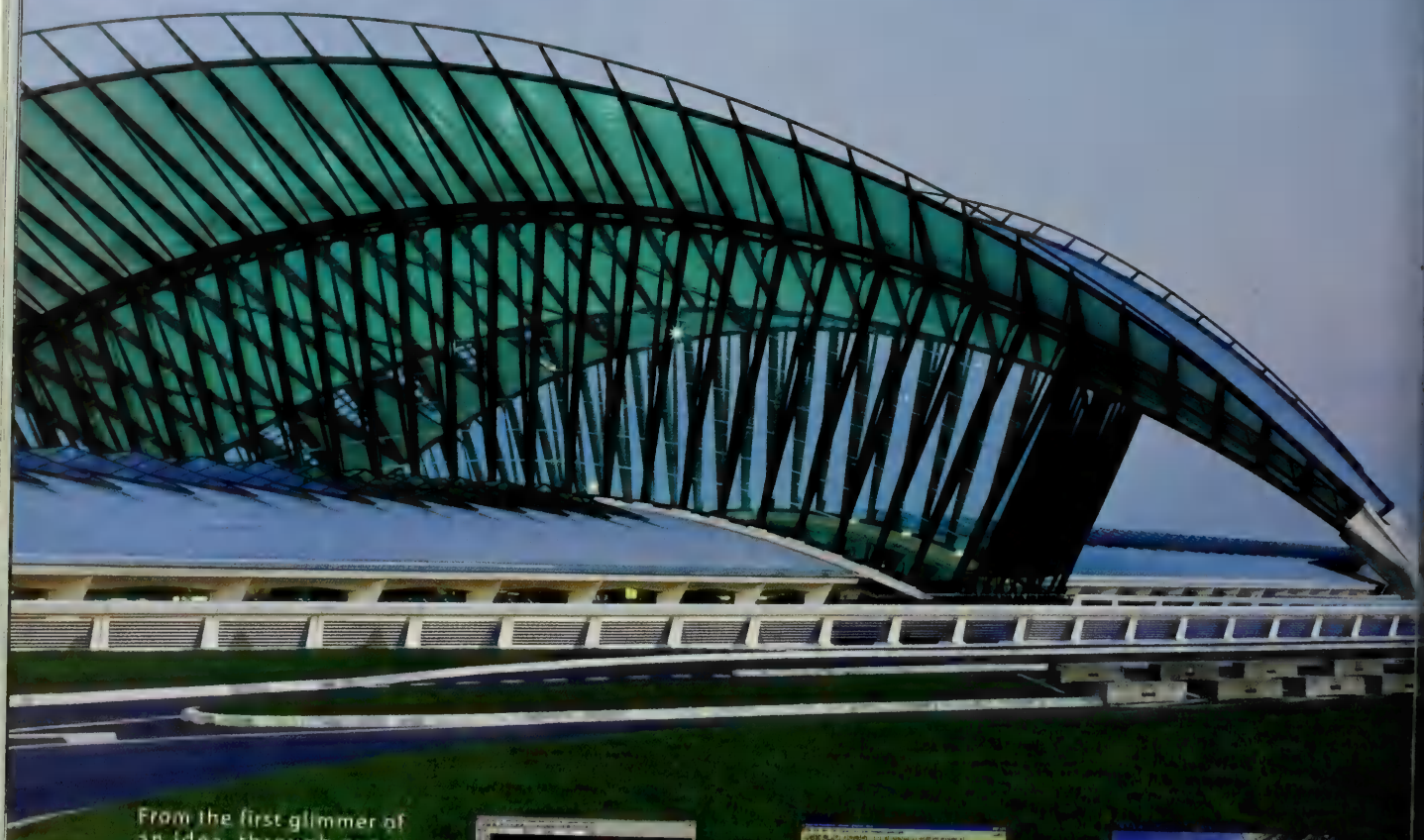
For the first time in many years of Record Houses, the selections this year include houses that are neither in the United States nor designed by American architects. As we near the turn of the millennium, this appears to be a significant decision. The world in the next century, we all know, will be far more multicultural, more international. Maybe it doesn't make sense anymore to think of a house as an expression of individual national, regional, or ethnic culture. Then again, if not cultural difference, what's to make a house in one place different from a house anywhere else? Do we really want a homogeneous built world? There'd be no reason to travel—and, indeed, there's less reason every day.

Anyway, it seems a good moment to reflect on houses and what makes them meaningful. As I get older, I get more self-indulgent. I ask the reader to bear with me for what is going to be an old-fashioned, rambling personal essay.

Everyone who's lucky enough to grow up in the same house over a period of time possesses, within his or her memory, a mythic place. On the following page there is a poem about the mythic house in my own life. It's a poem about my grandparents' house, where I spent my summers until I was 18. It's not only about racing out of the living room, across the porch and lawn, and onto the beach—although that's something I did a lot of, and all I was really thinking about when I wrote the poem. It's also about growing up, crossing thresholds, and moving from a dark safe place, nestled among the mysterious presence of adults, out into

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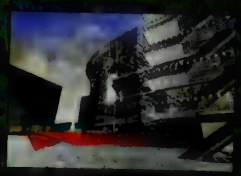
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The Screened Porch

A chorus upon the pure
formal fling of myself
projectile, arrow, bird
on the axis of the world
out of the dark and brown
bookshelved living room,
the catapulting feet
tiny, naked, pounding
the Navaho rugs, the call
of gulls, the shuffle of oaks,
the blade of threshold brass,
the porch air bright and warm,
smell of the sun, a figure
shadowy on the swing
or creaking in the wicker,
the smash through the screen door,
the stone path chilly, the pierce
of acorns, the downward leap
through the wall and the hot steps,
the pale and yielding sand,
the lake, the far dissolving
horizon of New York State,
the screen door slam behind.

—*R.C.*

the wide, bright, sexual, sometimes scary vistas of the world. The door always does, of course, slam shut behind you. You can't go home again. But the house lives on in your memory, which re-creates it as a work of art. The house becomes a storage chest of memories you often revisit. As such, it must be exclusive to you. To be wholly yours, it must be, in some manner, unlike any other house in the world.

That's a personal meaning of house. Here's a more social one. Madewood Plantation is on a bayou in Louisiana off the Mississippi River. I visited it in 1996, when the National Design Committee of the AIA was touring different sites along the river, and I've been thinking about it ever since. Someone once said that over the course of American history, the dream of an ideal community has been replaced by the dream of an ideal house. There's a lot of truth to that—depressing truth—but Madewood makes you realize the reality is more complicated.

Like some of Frank Lloyd Wright's houses, Madewood has a formal front and an informal back. Facing the bayou across a wide lawn, the front is Greek Revival—white, columned, symmetrical. It's handsome but pretty boring. You can find its like almost anywhere in the U.S.—the Hudson River or the Midwest, for example. Like so many other American architects, Henry Howard, Madewood's architect, adopted a European formal idea but then ripped it from its context of gardens or terraces and simply dropped it down on the lawn like a prized piece of statuary. It's as if the house had been purchased by a rich tourist and shipped across the sea. There is something very American and strange about the result. It characterizes us as a slightly lost culture.

But when you come around to the back of Madewood, everything changes. This part of the house faces a group of outbuildings—slave quarters, work sheds, perhaps cottages for the boys of the family to move into as they grew into adolescence. Some are attached to the house, some not. The house responds by becoming irregular, its symmetries violated. The rear facade has been shaped and distorted by its need to respond to the life of a particular family, and to the tiny community the family has created around itself. The outrigger buildings are like spreading roots, anchoring the house into the land. It's as if the house would float adrift on its green sea of grass in the huge, vacant North American landscape—and the equally huge and vacant lack of American history or culture—if it did not throw out these props to make for itself a rudimentary community.

Madewood embodies two dreams. The Greek Revival front represents the patriotic dream of membership in a national consensus. The Greek Revival was the first national style. It was an assertion of solidarity with the Roman republic, the ancient Greek democracies, and the contemporary Greek rebellion against the Turks—as opposed to what were seen as the corrupt monarchies of Europe. Since the South was soon to divorce itself from the rest of the union, this statement of membership in a national community was clearly fictive. And, of course, it was a dream that left many people out. Nevertheless, it was an optimistic and ambitious dream.

Madewood's backyard is, again, a dream of membership, not in a national but a local community. However, no local community



Madewood Plantation's architecture seems like a prized piece of statuary taken from Europe and dropped onto a lawn in America.









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actually existed, so the house had to create its own context with the outbuildings, which cluster like a village or members of an extended family. The house thus generates a place for itself to live in. It's a fiction, again. Madewood offers a double code, then: the front for membership in a national consensus, the rear for membership in a local community. Both are false, both touching, both admirable—both very American. And both remain vitally alive today in, let's say, the mythic land of Disney.

So maybe there is such a thing as American architecture. If there is, it has a lot to do with emulation (or denial) of foreign cultures—whereas emulation in European architecture, perhaps, is more often of other classes. Mark Lilla, the editor of the magazine *Public Interest*, recently cited at a conference a passage in Mark Twain's *Innocents Abroad*. The book is a travelogue of a cruise to Europe and the Holy Land. In it, one of the travelers describes a friend, Mr. Gordon, an American who is trying too hard to be French. He wears a rose in his buttonhole. Envelopes bearing foreign postmarks protrude from his breast pocket. He cultivates a mustache and pointed beard in the manner of Napoleon III. Comments Twain: "Oh, it is pitiable to see [an American] making of himself a thing that is neither male nor female, neither fish, flesh nor fowl—a poor, miserable, hermaphrodite Frenchman!"

Can anyone deny that American architecture, and American schools of architecture, were—at least until recently—heavily populated with Mr. Gordons? Teachers who usually lacked degrees in philosophy spent more time talking about French and German philosophers and sociologists than teaching anything you could properly call architecture. (I define architecture as "the art of making places.") Or think of the house styles in any American suburb, or even in a sophisticated place like Celebration, Florida: Chateauesque, Neo-Georgian. Mr. Gordon would have been first in line with his down payment. There are, of course, innocents abroad on both sides of the Atlantic, as Charles Jencks noted, and the Pacific, as he might have added. Inappropriate cultural imitation is everywhere today. You can also make a fool of yourself by going the other way, becoming a caricature American, a figure just as silly as Mr. Gordon's caricature Frenchman. Even Frank Lloyd Wright, with his pompous prairie bluster against everything European, verged on being such a cartoon.

Still, the problem is a serious one that won't go away. If we all go on speaking each other's architectural language and imitating each other's culture, the result will be worldwide architectural entropy. The built world will decline from difference into sameness. Just as we see indigenous verbal languages shriveling everywhere, being replaced by two or three international tongues, so architectural language will become universal. Everything will be international style. The so-called International Style wasn't the only international style. So was Post-Modernism, the style that embodied most vividly Mr. Gordon's view of the world. So was deconstruction. So are many movements today.

Surely a homogeneous built world is the ultimate horror. That's why the Aga Khan Awards for architecture, recently described in RECORD [November, 1998, page 68], are so interesting. They're the only serious effort to discover and cultivate a kind of design that will retain its cultural language without copycatting the past. That's not an easy job, and it requires deep attention to the essence of a culture, as well as a sensitive response to whatever is genuinely local: climate, materials, building traditions, perceptions, and what Spanish architect Rafael Moneo calls "the whisper of the site."

What does all this tell us about the 1999 Record Houses? Well, for one thing, that they're very diverse, thank heavens. At this writing I've seen only a cursory description of each house, and a couple of pictures. One trend is a revival of what you might call Arts and Crafts. The Rosebery House in Australia, built of "indigenous eucalyptus wood," appears to be a celebration of natural local materials as resolute as any dwelling by, say, Greene & Greene. The original Arts and Crafts movement, to which the Greene brothers subscribed, began as a rebellion *(continued on page 184)*



Madewood's rear facade is not symmetrical, but shaped and distorted to meet the needs of the family.

PORTFOLIO: Five pavilions provide tiny hideaways in the residential realm

Extraordinary things can happen when a building's footprint and the required program become extremely small. The simple box—liberated from functional complexity—can emerge as an exquisitely crafted object. Or as a folly: quirky and whimsical. Or as an exploration of a single focused idea—be it rational, conceptual, provocative, or even absurd. Ironically, the modest requirements of such pavilions can open the way to vast realms of invention.

In this portfolio, we offer a sampler of tiny buildings on residential properties, beginning with an unfolding pavilion, whose myriad configurations transform it into a meditative retreat, a small theatrical stage, a boathouse, and much more. Our selection continues with a sliding study on rails; a "glass box" cantilevered over a river; a guest cabin folly; and a wooden cabana that's as delicately crafted as a cricket cage.

We invite you—through our pages—to visit these places of relaxation. Lean back, kick off your shoes, and stay as long as you like. Sarah Amelar

Unfolding Lakeside Retreat

A VERITABLE CHINESE PUZZLE OF A PAVILION

ARCHITECT HANS PETER Wörndl's GucklHüpf pavilion was designed to remain in a constant state of transformation. Its hinged plywood panels invite compositional reinvention, as these elements alternately serve as ramps, doors, hatches, balconies, or window shutters.

Wörndl and two collaborators built the structure themselves, using off-the-shelf hardware, to create a three-story interior space beneath a smaller room and a roof deck.

The owners quickly found myriad uses for this pavilion, making it a place for bird-watching, meditation, boat storage, musical performances, parties, and poetry readings. Due to a legal controversy, however, it was disassembled and placed in storage, where it awaits its next metamorphosis.

Project: *The GucklHüpf, Mondsee, Austria*
Architect: *Hans Peter Wörndl*















Sliding Study on Rails





A HOUSE ADDITION THAT MOVES WITH THE SEASONS

ENVISIONING an addition with tremendous flexibility, the client requested a workspace that could change function when the upstairs tenant of 60 years moves out.

Taking the notion of transformation as a departure point, architects Kalhöfer-Korschildgen designed a second-story study, set on steel rails with columns, that two adults can easily reposition. In summer, the addition is separated from the house by a new steel-grate deck. In winter, the client can walk to work without wearing a coat.

The study's exterior skin of clear corrugated PVC reveals the underlying conduits like an exposed neural network. Plywood interior walls and foil-covered insulation panels are removable to convert this room into a greenhouse.

Project: *Movable Study, Remscheid-Lüttringhausen, Germany*
Architects: *Kalhöfer-Korschildgen*



Miesian Boat Hous

A PERCH FOR WATCHI THE RIVER FLOW BY

TO VICARIOUSLY experience water-borne pleasures, a former boa owner of advanced age hired architects Brookes Stacey Randall to design a river-watching pavilion for himself and his wife. The couple wanted a place near their vast gardens to relax alone or with guests.

Aware that the local planning board had already rejected two proposals for solidly traditional structures on this pristine site, Brookes Stacey Randall decided to design a jewel-like building that would be subtle and transparent.

The architects oriented a glassy rectangular volume perpendicular to the river's edge to reduce its perceived mass from the facing bank. To give the sensation of floating on water, they cantilevered it over the river.

Project: *The Boat Pavilion, Streatley-on-Thames, England*
Architects: *Brookes Stacey Randall*







Guest Cabin Folly



A PRIVATE WOODLAND HIDEAWAY FOR VISITORS



WIND WHISTLE is a lakeside property in rural Wisconsin with a main house and a collection of six small back buildings nestled among fields of wildflowers.

Though many of these structures, all designed by Stageberg Beyer Sachs, are tinged with whimsy, only the new guest cottage is actually called "The Whim." A bright blue, shingle-covered thumb-shaped cabin, it rises to a red sheet-metal crown. On the interior, the ceiling converges in a colorful board-and-batten pattern, described by the architect as an "eye of God."

Warmed by a wood-burning stove, this tiny structure has its own deck, small kitchen area, and an extension housing a full bathroom.

Project: *The Whim Guest Cottage, Wisconsin*
Architects: *Stageberg Beyer Sachs, Inc.*

Sun-Bathing Cabana

A FINELY CRAFTED SUM HOUSE BUILT IN A WEE







FOR A LUSH garden on the outskirts of Vienna, architect Georg Marterer designed a poetically simple sunbathing hut. Using unplaned timber, ordinary nails, steel gusset plates, a corrugated aluminum roof, and hemp-rope tension cords, he constructed it himself—a process that he says took only 40 hours.

A modular system, based on a cube, regulates the form, allowing for relatively easy deconstruction or enlargement. This battened timber pavilion delicately touches the ground (with its high water table) only where the 10 vertical posts meet square concrete pads. Horizontal slats filter light to the interior, where the owners study, dine, store gardening equipment, entertain visitors, or simply take in the fresh air.

Project: *Summer House, Vienna-Neuwaldegg, Austria*
Architect: *Georg Marterer*



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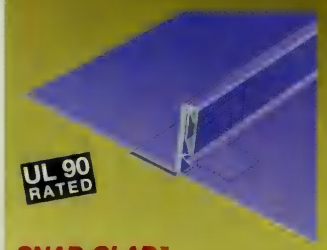


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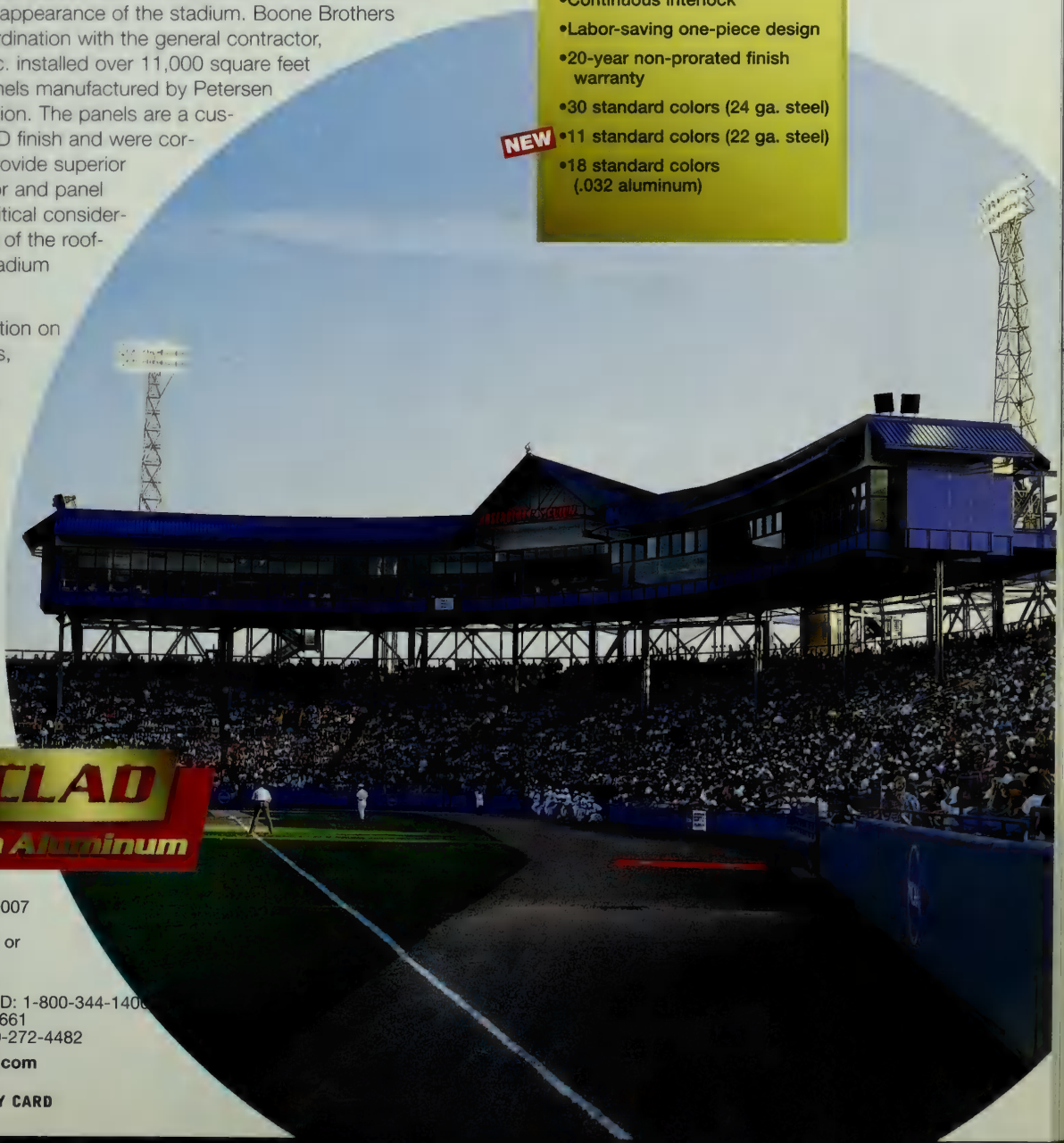


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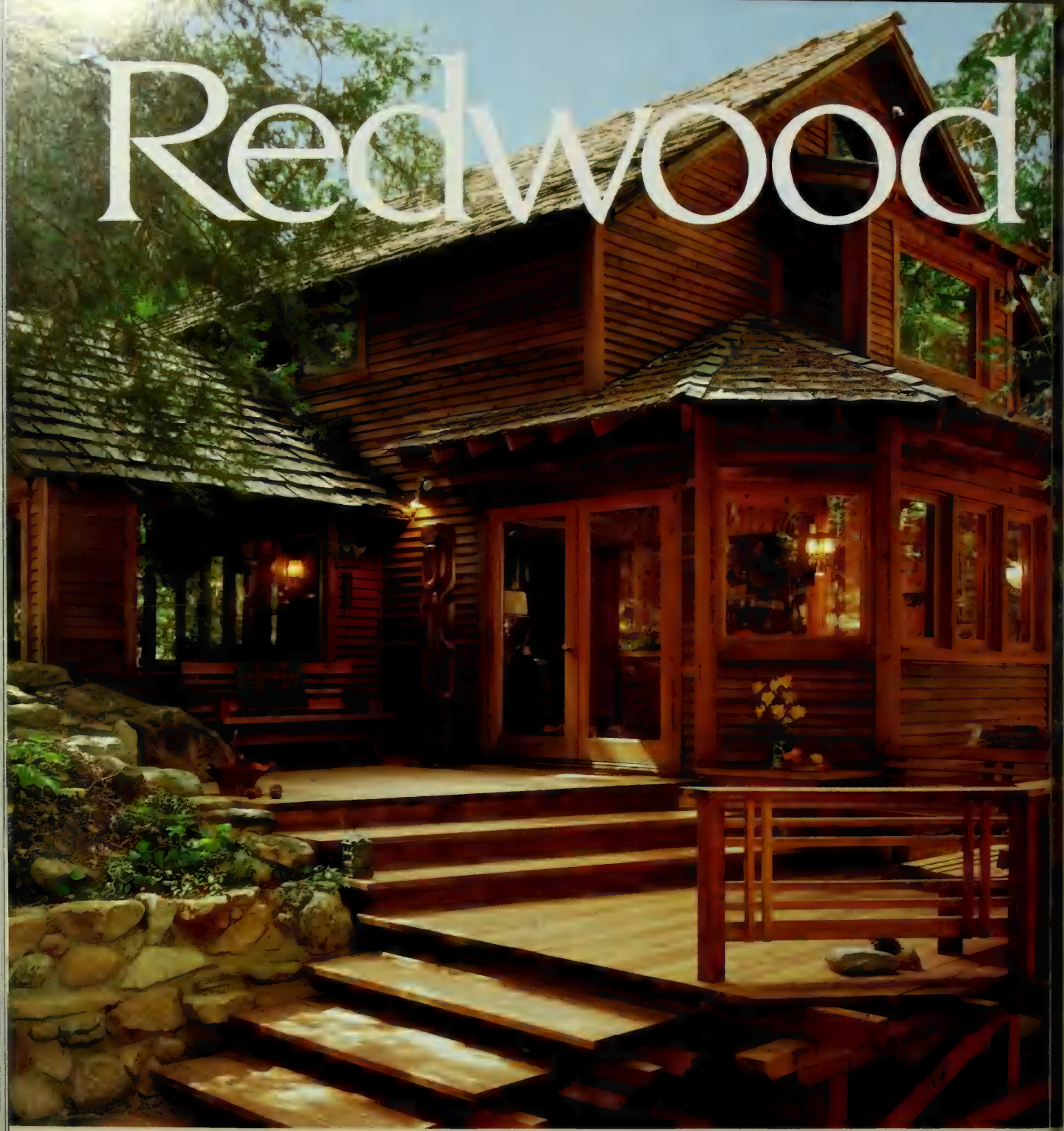
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Scott Padgett, *Designer/Builde*

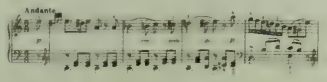
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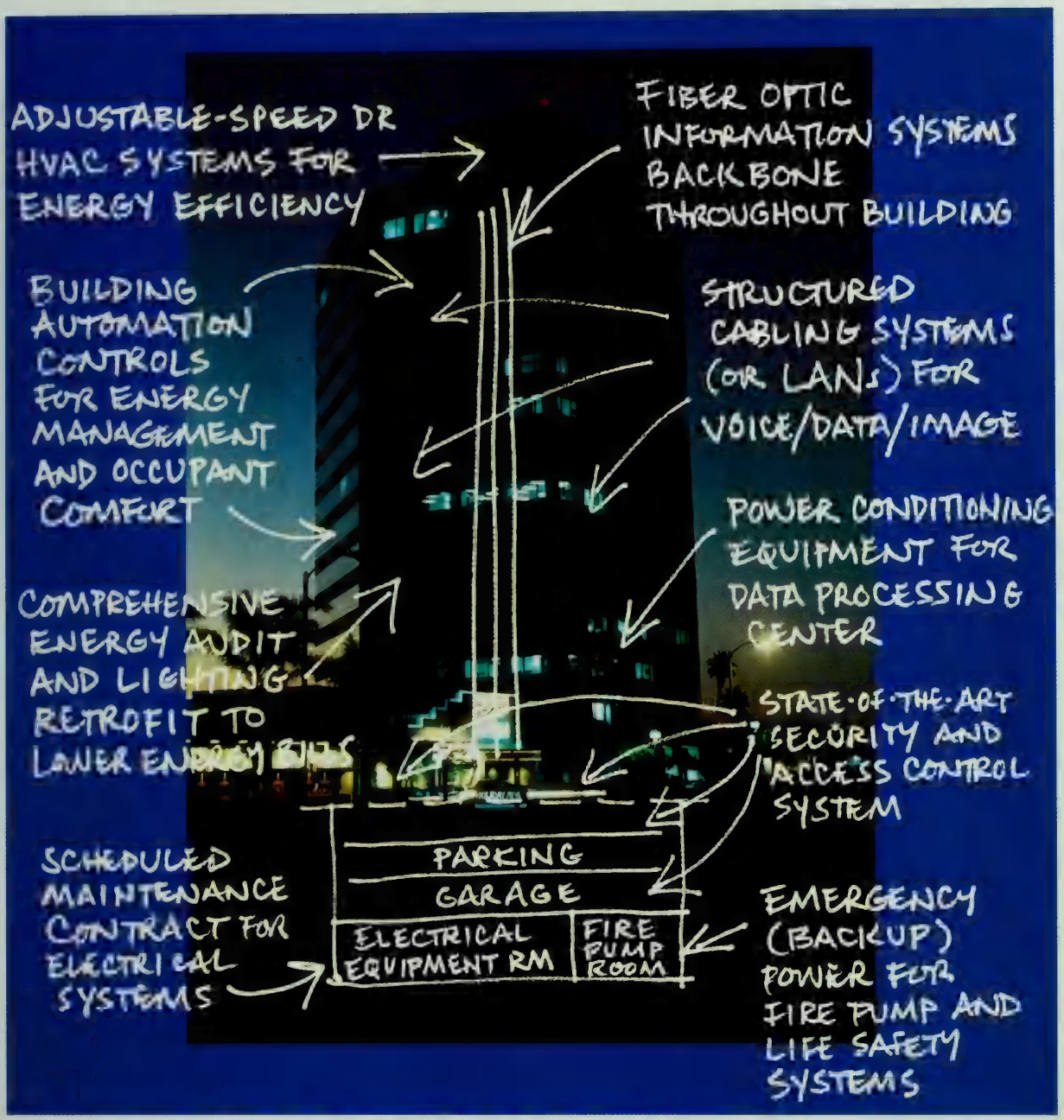
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CIRCLE 52 ON INQUIRY CARD

Record Houses 1999

Is she beautiful?" Groucho Marx once reportedly said of a woman. "Well, if you take away her eyes, nose, and mouth, all you're left with is a blank expression." A similar comment could almost apply to the eight projects chosen as this year's Record Houses. True, their range of expression owes much to their prominent features: the massing, spatial sequences, and rhythms of apertures and materials. But in every case, the site or "blank" canvas, unlike that featureless face, holds a distinctive and compelling character.

The sites vary from the arid desert of Arizona to a tiny urban lot in Toronto, a salty pond's edge in Long Island to a meadow in Vermont, a hilly orchard in rural France to a classic townhouse row in Chicago, a bungalow-filled 'hood in Los Angeles to a lush gully in Australia.

Houses by:
1. William P. Bruder, Architect
2. Shim-Sutcliffe Architects
3. Michael Singer, Inc.
4. Herzog & de Meuron
5. Tod Williams Billie Tsien and Associates
6. Morphosis
7. Tadao Ando Architect & Associates
8. Andresen O'Gorman Architects

A powerful sense of place preceded the architecture—and, with each house, prompted a potent response. Metaphors evoking the forms and textures of the surrounding landscape, for example, characterize Will Bruder's Byrne Residence in Arizona, as well as Brit Andresen and Peter O'Gorman's Rosebery House in eastern Australia. Lying low in the desert, Bruder's building evokes the Southwest's subtle and dramatic rock formations: shifting strata, chasms, and canyons. Andresen O'Gorman's timber-battened house, by contrast, draws poetic inspiration from its region's delicate eucalyptus groves.

Instead of echoing the setting, some projects offer a decisive counterpoint. In Toronto's Craven Road House, Shim-Sutcliffe Architects joined commonplace materials with the precision of fine cabinetry—inserting an essay in subtle invention into a neighborhood of conventional aluminum-sided cottages. In his museumlike Chicago house, Tadao Ando created an inward-facing precinct—a tranquil world apart—while still retaining a dialogue with the city's panorama of rooftops.

In this era when American cityscapes have yielded to the homogenizing effects of Banana Republics and Pottery Barns, when the force of the Euro threatens to blend France's quiche Lorraine with England's beef-and-kidney pie, when throngs of workers spend their days in the experiential sameness of cyberspace, real-world architectural diversity is still alive and well. Sarah Amelar





The main entry (this page) shows how vertical elements balance the angled roofs and canted walls. From the street the house presents a mostly solid front (opposite).

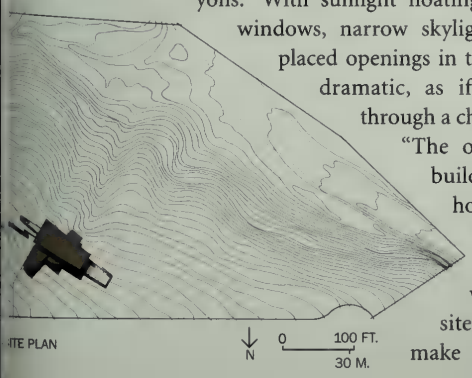
In the Arizona desert, WILL BRUDER creates a house that emerges from its rocky site, evoking chasms, canyons, and shifting strata.



by Clifford A. Pearson

Spend some time with architect Will Bruder and you'll hear as much about geology as architecture. The man knows his strata, canyons, and fossils. After all, he is married to an archaeologist and has designed an interpretive center for viewing native American rock art [RECORD, October 1995, page 64]. A Midwesterner by birth, Bruder loves the desert and all its rugged glory the way a convert loves his adopted religion. Needless to say, geological metaphors abound in the Byrne Residence, a 2,900-square-foot house that appears to be at once anchored to and emerging from a rocky hillside about 60 miles north of downtown Phoenix.

First, there are the house's canted concrete-block walls, which evoke the sloped cliff faces of Western mesas. Not only do the masonry blocks inch out from the vertical plane as they rise, but the courses—exposed on the interiors and exteriors—are laid at an angle to the floor, recalling rock strata that have shifted over time. In addition, parallel walls stand close together, forming compressed spaces that Bruder calls "canyons." With sunlight floating in from clerestory windows, narrow skylights, and irregularly placed openings in the walls, the effect is dramatic, as if one were walking through a charged landscape.



"The original idea was to build a tilt-up concrete house, to have it unfold out of the earth," explains Bruder. But when contractors said site conditions would make tilt-up construction difficult, the architect switched to concrete block. The resulting design, says Bruder, seems to be "extruded" from the land, rather than unfolding out of it. "In the end, I think this was the right way to go. You get a better sense of stratification and of layering."

Set on a five-acre site beyond the sprawl of the country's sixth largest city (and one of its fastest growing), the Byrne Residence presents an almost solid face to visitors approaching by car: concrete block, rusting steel, and copper cladding. It's an uncompromising facade—not as graceful as it might have been, but strongly connected to the desert terrain.

Visitors enter through a glass-and-metal seam between the copper-clad garage block and the elongated form of the house. The interior unfolds as a pair of canyons—one serving as the main-floor spine, the other leading down to the lower level. Each is defined by a thick masonry wall along one side and a clear-glass plane at the end that draws you along with the promise of a view. On the main floor, the canyon reveals the house's structural system: a great sloping metal roof attached to a concrete-block wall with seven steel brackets. By pulling the roof four inches from the wall and allowing daylight to creep in through a long narrow skylight, Bruder both creates and exposes the illusion of weighty elements floating in space.

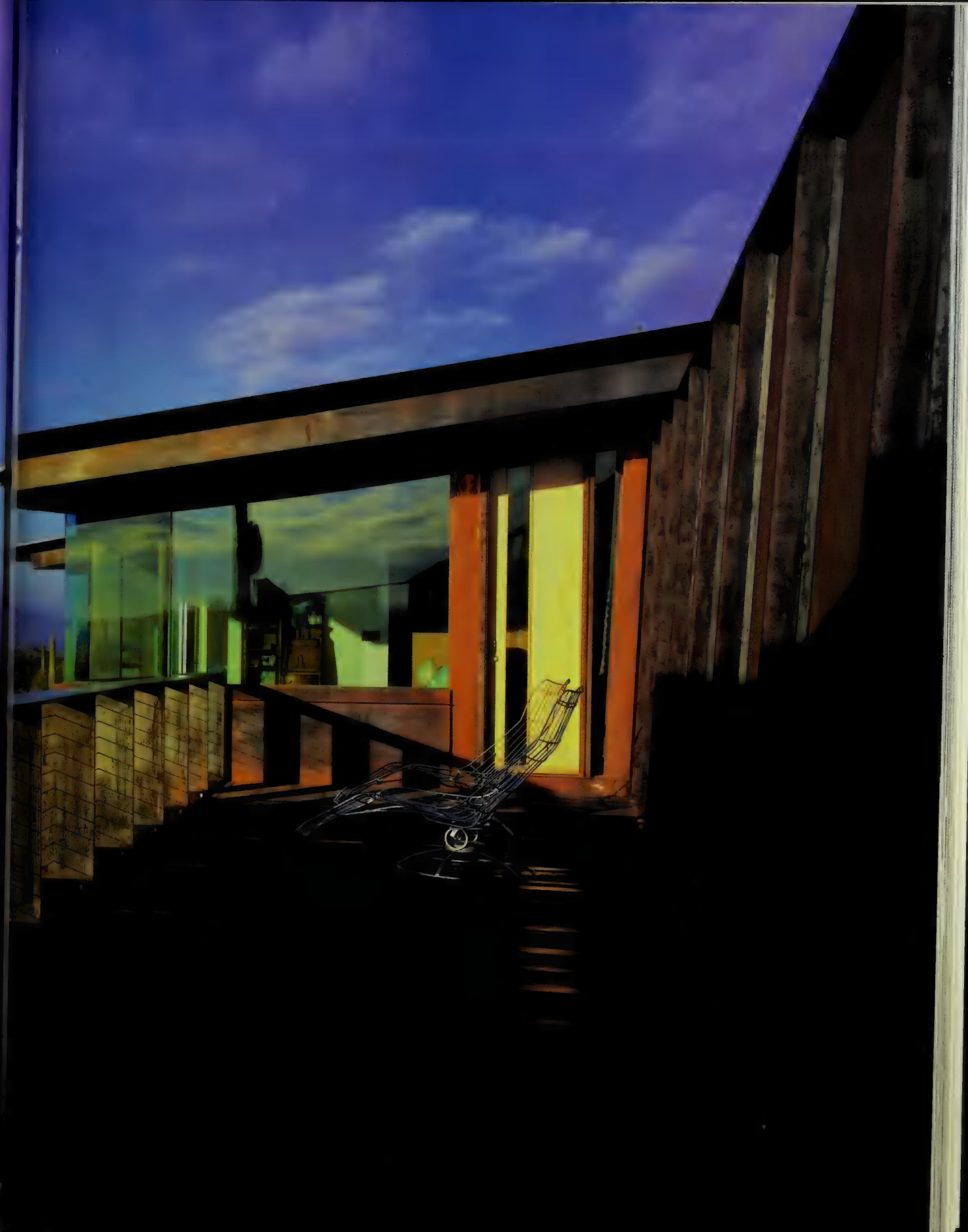
Modest in size, the house draws our attention through contrasting shadow and light, architectural brawn and visual dexterity. While its north facade is mostly concrete block, the south side is just the opposite, with expanses of glass that reveal impressive views of arid hills and great sculptural cacti. If the front elevation is a cliff face, the back is a crystalline formation breaking free of the earth. The highlight of this transparent composition is a glass table set in a faceted, glass-enclosed dining room that projects beyond the rest of the house.

To take advantage of a climate that encourages outdoor living, the house has a patio off the living room and a long terrace off the master

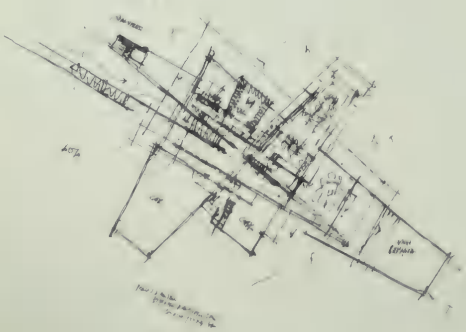
Project: *Byrne Residence, North Scottsdale, Arizona*
Owners: *Bill and Carol Byrne*
Architect: *William P. Bruder, Architect—Will Bruder, Tim Christ, Jack DeBartolo III*
Engineers: *Rudow & Berry (structural); Roy Otterbein (mechanical); CA Energy Designs (electrical)*
General Contractor: *Bill Byrne*



A terrace off the master bedroom offered the architect a chance to play with varying degrees of transparency. Angled planes of rusting steel mesh, a steel-plate balustrade, and large sheets of glass on the house filter, frame, or reflect views of the desert and nearby mountains.





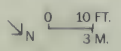




MAIN FLOOR



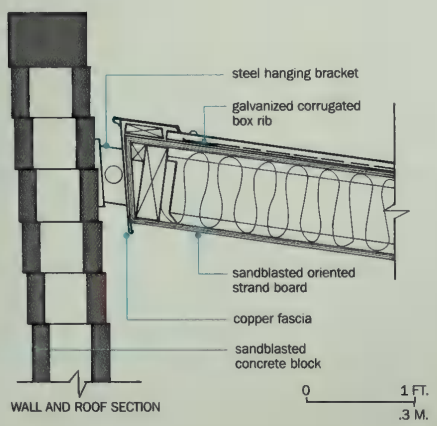
LOWER FLOOR



1. *Entry*
2. *Garage*
3. *Bedroom*
4. *Pantry*
5. *Kitchen*
6. *Dining*
7. *Living*
8. *Master bedroom*
9. *Office*

From the east (top) and the west (opposite), the house opens up to views and reveals an architecture of walls extending beyond the interior spaces. Landscaping was kept simple in order to allow the natural desert flora to reclaim the land around the house.





WALL AND ROOF SECTION

bedroom that extend the interiors—providing casual spaces for enjoying an alfresco meal or reading a good book. Such weaving together of indoors and out certainly has roots in Frank Lloyd Wright's work, which Bruder has long studied, but the use of rusting metal mesh and canted concrete walls brings a 1990s aesthetic to the work.

Rather than designing an overly precious landscape, Bruder let the desert flora reestablish itself all the way up to the house's hard edges. The careful fit between house and site—requiring the removal of only a few cacti during construction—made the landscaping job easier.

By tucking the building up against a hillside, Bruder protects it from the desert sun's brute force and creates a cool lower level for guest bedrooms and home offices. The heavily glazed living room, though, faces southwest and can take a beating from the sun in the winter when the rays are low enough to slip under the deeply cantilevered metal-deck roof. "This was a trade-off we were willing to make to get the views," explains Bruder. "And we're adding perforated fabric scrims to the windows here." The rest of the house stays cool most of the time, thanks to natural ventilation through screened doors and casement windows set within the insulated glazed walls.



Casement windows like the tall one set within a large plane of glass in the dining room provide cross ventilation.

The clients, Bill and Carol Byrne, had lived in more traditional houses in New Jersey and Arizona. But both knew a great deal about architecture—he as a general contractor and she as a textile and interior designer. Before hiring Bruder, the Byrnes prepared a program calling for a "simple and basic" house that was "comfortable and modest," had natural materials, and was energy-efficient. They imposed no stylistic requirements other than a request for "organic architecture." Other architects who interviewed for the job looked at the rocky, sloped site and talked about all the problems of building on it. "When Will looked at the site, he got excited immediately," remembers Carol. "Within 15 minutes he was already putting ideas down on paper."

BRUDER CREATES THE ILLUSION OF HEAVY ELEMENTS FLOATING IN SPACE.

Working as his own general contractor, Bill Byrne took on the job of building something radically different from the colonial houses that usually fill his work sheet. Concrete slabs, corbeled masonry walls, and a great cantilevered steel-framed roof were all new to him. The most challenging task, he says, was making sure that a canted block wall properly met a roof tilting in two directions.

Despite all the angles, the house never seems off-kilter or unbalanced. This is because every canted or angled element is structural and reveals the way it is built. "They're not faked with gyp board and studs," says Tim Christ, a member of Bruder's project team. In other words, these angles aren't just for show or for expressing some theoretical conceit.

In several of Bruder's recent projects, including Temple Kol Ami in Scottsdale, the Cox Residence in Cave Creek, Arizona, and the design of a Scottsdale Arts Center exhibition on 25 years of his work, the architect explored innovative ways of building concrete-block walls. Rotating, corbeling, and moving blocks in and out of plumb are some of the imaginative ways he has stacked these humdrum masonry units. The result is a rich palette of effects made from just one cheap material. And when sunlight is added, the rewards are even greater.

When asked about inspirations for his recent work, Bruder recommends a visit to Frank Lloyd Wright's Harold Price Sr. House (also called the "Grandma House") in the Phoenix suburb of Paradise Valley. Dating from 1954, the Price House has concrete-block walls that corbel out as they rise and an expansive roof that seems to float above bands of glass. Without trying to copy the look or feeling of a Wright design, Bruder has clearly borrowed a few of the master's ideas and taken them in his own distinctive, freewheeling direction. ■

Sources

Sandblasted concrete block: *Western Block*
Insulated and tempered glass: *HGP*
Aluminum sliding doors: *International*
Locksets: *Titan*
Bathroom accessories: *Agape*
Sofas and chairs: *Ligne Roset*
Wire chairs: *Knoll (Harry Bertoia)*
Interior ambient lighting: *Tech*
Downlights: *Halo*
Task lighting: *Album*
Lighting controls: *Lutron*







"Canyons" that slope to the lower level (top) and create a circulation spine for the main floor (right) seem to be shaped by geological forces. The concrete blocks in the canted interior walls are laid in courses parallel to the angled roof, not the floor. Rebar runs vertically through each concrete-block cell and across every third course. Glass orbs are by artist Mayme Katz.



The north side of the Craven Road House is only 15 inches from the property line, allowing a slitlike passage to the south.

In a small house for an architectural biographer, **SHIM-SUTCLIFFE ARCHITECTS** bring together the cottage and the loft.

by Charles Linn, AIA

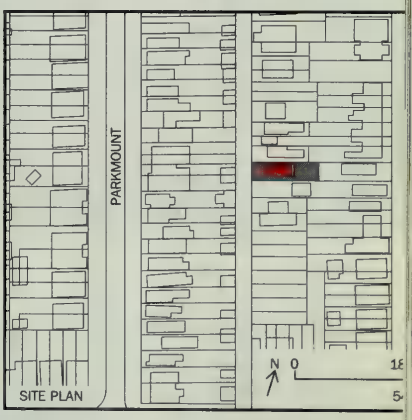
Robert Hill is passionate about his house. For Shim-Sutcliffe Architects, whom he hired to design it, Hill was no ordinary client. An architect himself, he really knew buildings and he knew what he wanted. He holds a day job as an archivist-researcher for a Toronto architectural firm, but his life's work has been the compilation of a massive biographical index on late Canadian architects and their work. "When it is complete," says Brigitte Shim, noting that Hill is currently working on architects whose last names begin with T, "it will be a national treasure."

Hill's diminutive jewel of a house sits on Craven Road in a densely built middle-class neighborhood in northeast Toronto. Though the building appears elegantly simple, it satisfies complicated and often conflicting requirements. The U.S.$65,000 construction budget for this 1,100-square-foot house was as minuscule as its 25-by-90-foot lot. "That did not include 'soft' costs," says Hill, "such as design fees, property costs, household appliances, and utility hookups." To stay within the budget, Hill, Shim, and her partner, Howard Sutcliffe, along with the general contractor and various fabricators, regularly dissected and analyzed the design in minute detail. In the process, they developed a strict hierarchical ordering within the house. They ranked the relative importance of the spaces, determined how to organize them and how much volume to apportion to each, and at the same time examined how the building would be constructed. Compromises were made so that the money was spent wisely and according to Hill's wishes.

The first thing to go was the garage, which Hill considered a wasteful expenditure, even though it's technically a city requirement on Craven, a narrow road without on-street parking. Hill is a dedicated pedestrian who relies almost completely on Toronto's public transportation system and has never owned a car. He sought and received a variance permitting a vehicle to be parked in his front yard when necessary. To retain a small yard on the south side of the house, the width of the building was kept to 17 feet and the north side was pushed as close to the property line as possible: 18 inches. The house's 32-foot depth allows Hill to have a small garden in the back.

"The ways in which priorities are ordered in my life are very much in evidence in the final design," says Hill. To keep the building shell's cost to a minimum, the foundation was built of block rather than poured concrete. While the perimeter walls are six inches deep to allow for extra insulation, the exterior skin is what Shim describes as "just a rain screen." It consists of exterior plywood whose joints have been caulked with silicon and covered with battens. The deep red finish is a semitransparent exterior stain covered by a coating that protects its rich color from ultraviolet light. Though the roof appears





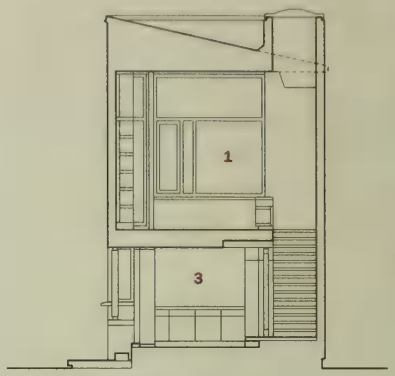
Many homeowners on Rhodes Street subdivided their 25-foot-wide by 180-foot-deep lots and sold the rear portions for building sites that front on Craven Road (site plan below right). Hill bought a 90-foot-deep plot for his house (below left).

Project: *Craven Road House, Toronto, Ontario*
Owner: *Robert Hill*
Architect: *Shim-Sutcliffe Architects—Brigitte Shim, Howard Sutcliffe, principal designers*
Engineer: *New Onen (structural)*
Consultants: *Cannon Nursery (landscape design); Takashi Sakamoto (lighting); Steve Bugler (custom doors, windows, and cabinetry); Rob Beraldo, Arthur Billard (custom library cabinetry); Sam Monteleone (miscellaneous metals)*
General Contractor: *Ptarmigan Construction*

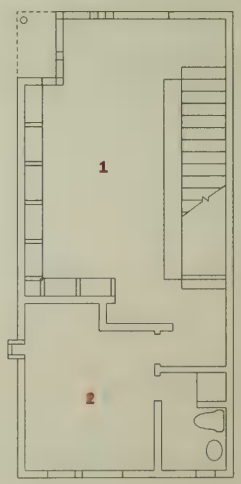




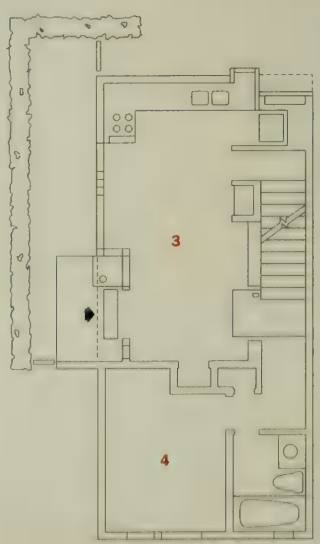
The architects describe the house's exterior skin (above and right) as a "taut wrapper." The plywood is finished with a deep red semi-transparent stain covered by a protective coating. Virtually all of Hill's activities center around the kitchen/dining room (opposite bottom left) and library (opposite right).



SECTION LOOKING WEST

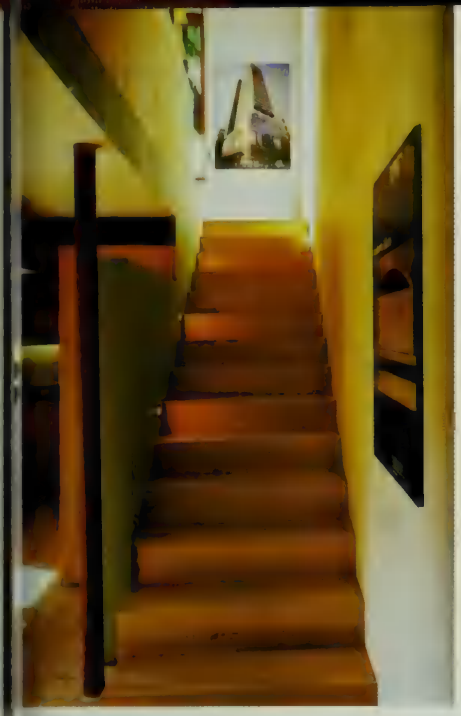


SECOND FLOOR

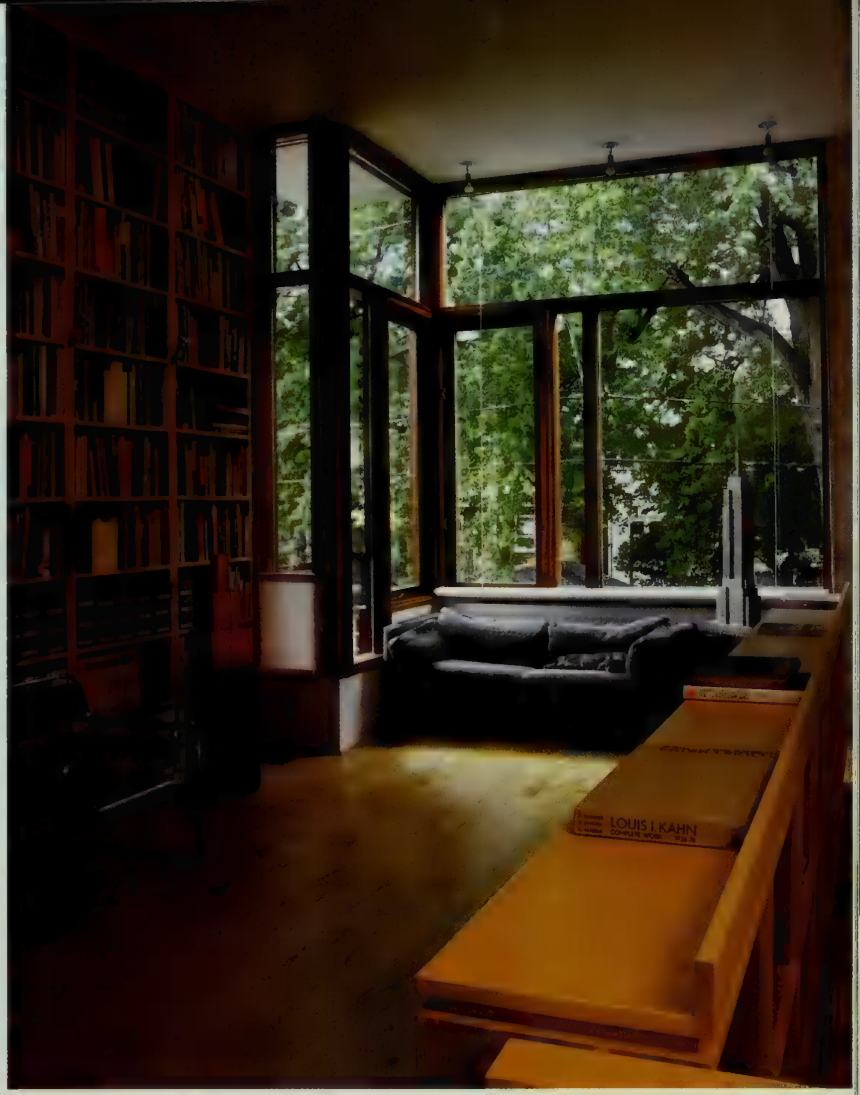


GROUND FLOOR N 0 10 FT. 3 M.

1. *Library*
2. *Bedroom*
3. *Kitchen/dining*
4. *Bedroom*







flat, it is actually made of prefabricated, low-slope roof trusses, covered with shingles and concealed by a low parapet wall.

The kitchen/dining room, where Hill prepares meals and entertains friends, is cottagelike in its proportions. Located on the first level, just off the entry, it has a sunny, southern exposure. Although the architects decided to lower the room's height—the ceiling is only seven feet, six inches high—the resulting shorter stairway to the library allows for more spacious landings. Painted terra-cotta red and mauve, with maple cupboards and incandescent lighting, it is the most intimate space in the house.

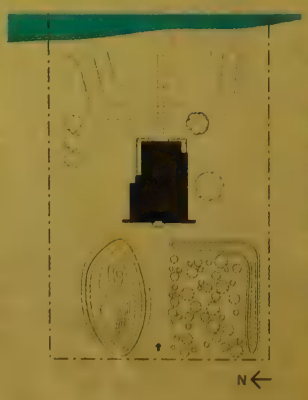
Hill often works on his opus at home, and the size and orientation of his library reflect his priorities—just as the kitchen embodies the warmth and communal spirit of a hearth. One knows immediately upon entering the library that this is a room of industry, that important work goes on here. The library's proportions are loftlike, with the distance to the ceiling a luxurious 12 feet, providing wall space to accommodate Hill's large collection of books, files, and architectural posters. When at home, he spends most of his waking hours in this library, and it shows in its custom details—from the built-in bookcases to the large custom-made, mahogany-framed windows, which open up the west wall and southwest corner to admit daylight and neighborhood views. Hill himself is quick to point out, however, that inventive cost-cutting had its place even in this room: "The bookcases look like they're maple, but they're really medium-density fiberboard edged in maple. The maple flooring is number-two grade," he says, adding proudly that he installed it himself. Even the custom-looking adjustable light fixtures were made from inexpensive outdoor lamp holders fitted with chrome-plated canopies.

The Craven Road House strikes a rare balance between the realities of economics and the breadth of its owner's desires. Hill finds it personally satisfying that the architectural solution appears simple rather than complicated—a testament to the ingenuity behind this highly refined design. ■

Sources

Exterior finishes: *Plywood and timber board with Sikkens Cetol finish (Azko Coatings)*
Shingles: *Thorndale Roof Systems*
Custom windows and doors: *Radiant City Millworks*
Cabinetry: *Radiant City Millworks*
Paints and stains: *Para Paints*
Floor tile: *Olympic Tile*
Library cabinetry: *Catfish Design/Build*
Lighting: *Eurolite, Rab, Luxo*
Bathroom faucets: *Moen (faucets), Speakman (shower controls)*
Bathroom fixtures: *Universal Rundle*
Kitchen sink: *Kindred Industries*
Kitchen faucets: *Chicago Faucet*

Surrounded by typical New England houses, Huber's residence creates its own setting with an earth mound and a grove of replanted trees in the front yard (site plan). The front elevation (above) screens the house from the street, while the back (opposite) opens to river views. South-facing windows (right) help warm the interiors.





Moving from sculpture to architecture (and back), **MICHAEL SINGER** explores boundaries that both separate and connect.



by Clifford A. Pearson

Since he began making sculptures in forests and swamps in the 1970s, artist Michael Singer has been exploring the intersection of built and natural environments. His early works were ethereal constructions of bamboo, fallen trees, and various kinds of wood that sat lightly on the ground or, in some cases, emerged from bodies of water. Over the years, he has turned to heavier materials, especially concrete, with projects that question the boundaries between architecture and art, landscape and construction. For example, he and artist Linnea Glatt turned what might have been a dreary garbage-transfer station in Phoenix into a giant environmental sculpture that the public can walk through and where visitors can learn about recycling [see RECORD, June 1994, page 98.]

As the scope and scale of his projects have grown, Singer has collaborated with architects such as Kallmann McKinnell and Wood and Behnisch, Behnisch & Partners on indoor and outdoor gardens at large office complexes. He has also designed small pavilions on private estates. So when Parker Huber, a therapist and nature writer, asked him to design a house in Brattleboro, Vermont, just 20 miles from Singer's own residence and studio, Singer was ready for the challenge.

A Brattleboro resident since 1979, Huber had been looking for many years for the right site on which to build a small home. Since he doesn't drive, the site had to be within walking or bicycling distance of town. It also needed a clearing large enough so no trees would have to be cut down during construction, and south-facing views so the interiors could be warmed by the sun. Once he found the right place to build, Huber had few specific requests. "I don't need closets and I don't cook," says Huber, who lives simply, with little furniture and few possessions, but indulges a passion for folk dancing. In his low-key manner, he says, "All I need is a place to dance and to inspire my work."

On his first visit to the site, Singer immediately saw connections between the architectural project and a large sculpture he was creating in his studio. Like much of his artwork, the sculpture dealt with issues of enclosure, layering, and materiality. As the design and construction of the house progressed, Singer continued to work on the sculpture, and the two projects informed each other.

"From the very beginning, I saw the front of the house as a screen to the street," says Singer. Made of concrete panels that the artist cast on his barn floor and topped with a cedar trellis that is slowly turning a color similar to the concrete, the screen is a richly textured threshold between the public realm and the private. Like much of Singer's sculpture, the dwelling's front elevation incorporates carved wooden strips set in cast concrete. In an intriguing play on materials, it also includes concrete versions of these carved strips (cast from molds made from the same wood pieces). Nonstructural and extending beyond the width of the house, the screen is bolted to the concrete slab beneath it and the wood-framed house behind it. When the newly planted vines—including grape, ivy, honeysuckle, and Virginia creeper—mature, the front of the house will become a lush plane of green, linking yet separating outdoors and in.

Designed and built in one year for just $150,000, the 1,500-square-foot house is a straightforward structure with wood trusses engineered to support snow loads on what is essentially a flat roof. A 500-square-foot U-shaped loft rests on three-by-10-inch timber beams on its south and west sides and is suspended from the ceiling at its northeast corner. The exposed rough-sawn timbers were cut by the same person who has been providing wood for Singer's sculptures for the past two decades. A concrete pier-and-beam structure that stands inside the 15-foot-high living space and extends from a large concrete chimney also helps support the second floor. A fireplace at the base of the chimney and an exhaust pipe at the top have yet to be installed, so the brawny chimney is more sculptural than functional at this point.

Just as he makes changes in his sculptures as they are built, Singer finetuned the Huber residence during construction. For example,

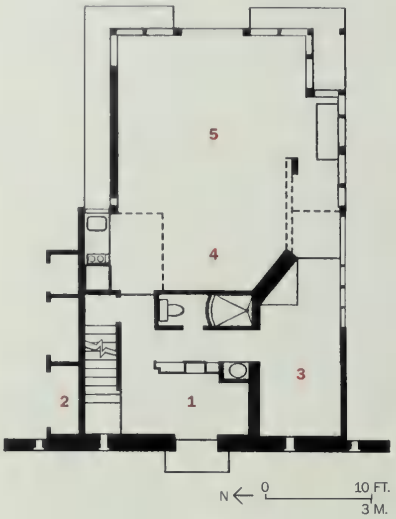
Project: *J. Parker Huber House, Brattleboro, Vermont*
Owner: *J. Parker Huber*
Designer: *Michael Singer, Inc.—Michael Singer, Sterling Mc Murrin, design team*
General Contractor: *Heartwood Builders—Peter Vandertuin*

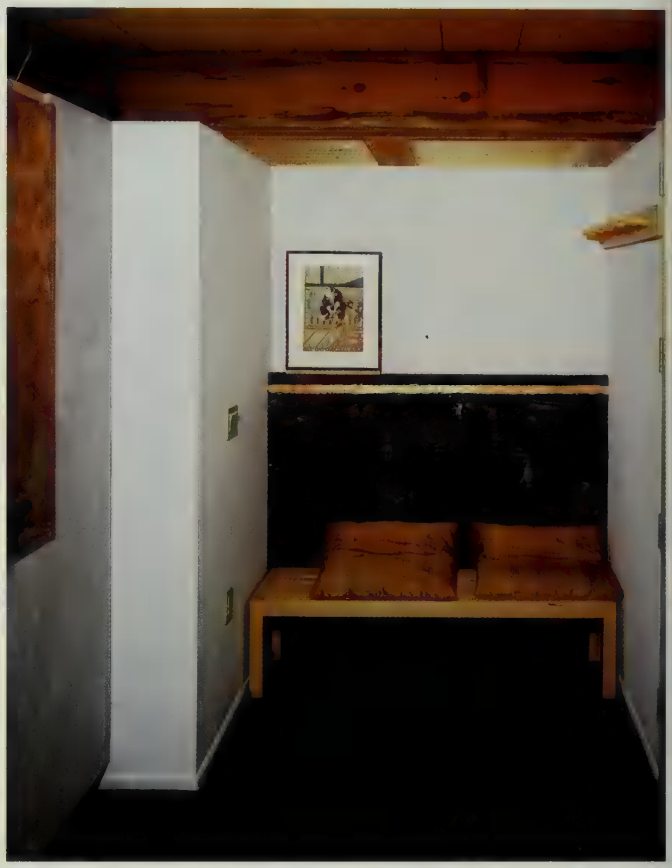


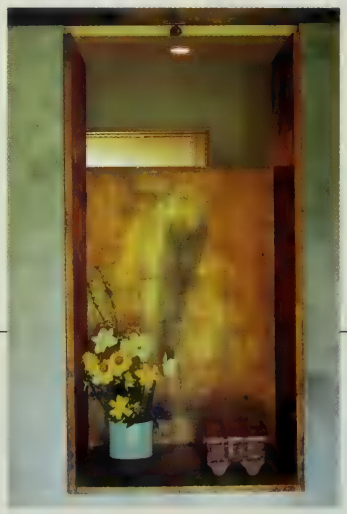
The 15-foot-high living room is the center of the house, wrapped on the south and east by sliding and casement windows to capture the views. The chimney's concrete panels were cast on various materials (such as wood, Masonite, and glass) for different effects.



2. Storage/mechanical
3. Office
4. Living
5. Dance floor







A wall niche (right) and a bench (far right) turn the small entry foyer into an intimate setting. The copper-leafed niche is set within a subtly colored plaster wall.

he added a tall narrow window on the north elevation during framing so he could capture a view of trees in the distance.

The dwelling centers around a double-height living space with spectacular views to the east and south. Occupying much of the room is a maple dance floor that rests on wood beams and cushioning to give it some spring. Private spaces—including a small kitchen, a bathroom, and areas for sleeping and working—wrap around the building's more solid west and north sides. The simple plan allows for flexibility of use. Indeed, the loft was originally designed as the client's office, with his bedroom below. But Huber has set up the loft for sleeping and placed his desk on the main floor to take advantage of the large, south-facing windows there.

Darkly pigmented concrete floors on the main level, a spruce floor on the loft, and white gypsum-board walls establish a simple stage for dramatic features such as views of the Connecticut River and Mount Wantastiquet and the sculptural chimney. Like Singer's artwork, the chimney is made of concrete panels cast on such surfaces as an old wood floor, sheets of Masonite, and panes of glass and is inlaid with strips of copper and copper-leafed pieces of carved wood. Set in front of large, south-facing windows, the chimney and the concrete pier-and-beam structure also serve a more prosaic function: to absorb solar energy during winter days and then release it slowly during the night.

Singer designed most of the sparse furnishings himself: a bench in the foyer, a curving couch in the living room, bookcases upstairs. If left to his own devices, Huber would probably just toss a few pillows on the floor. The same kind of minimal aesthetic can be seen in the entry foyer, where a copper-leafed niche is set within a subtly hued plaster wall. Decorated with a bowl of flowers and lit from a single fixture above, the niche is a Zenlike composition that captures the essence of the house.

Since he writes about nature, Huber wanted a place that would integrate indoors and out. His house succeeds at this by capturing views, bringing a concrete planter indoors, and even offering a view of a distant bridge from the bathroom. Outdoors, Singer cut away some of the ground in the backyard to open a view to the river below and then used the fill to create a mound out front. He also took about 100 small trees—birch, maple, poplar, ash, and aspen—from a farmer's field and planted them in one half of the front yard so they work with the earth mound to create a landscape that seems as if it might have grown naturally. The result is a house that, Huber explains, "helps connect me to this place."

A year after completing the house, Singer is still working on the sculpture that inspired it. For him, art is slower than architecture. ■

Sources

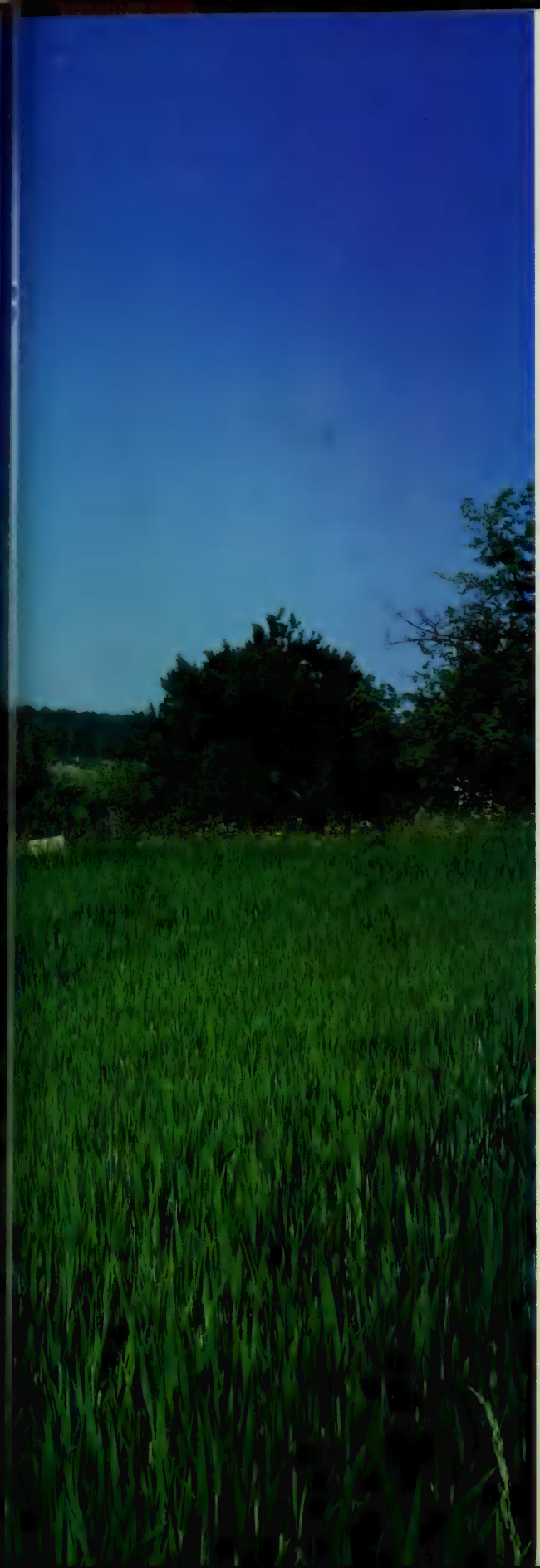
Sliding and casement windows: *Marvin Windows*
Paint: *Benjamin Moore*
Exterior stain: *Cabot*
Entry wall plaster: *Silpro*
Copper leaf: *Sepp Leaf Products*
Copper-leaf patina: *Jax Chemical*
Plumbing fixtures: *Moen*
Table and couch: *Custom designed by Michael Singer, Inc.*
Couch upholstery: *Sunbrella*
Concrete countertops: *Custom designed by Michael Singer, Inc.*



A planter set in the concrete floor (right in photo) continues a line of flower beds that wrap around three sides of the house.



Grassy hills surround the classic domestic form (above)—ironically cast in a non-traditional material: concrete. A single tree in front of the house evokes a portrait by painter René Magritte in which an apple blocks the view of the subject's face.



PHOTOGRAPHY: © MARGHERITA SPILUTTINI

In rural France, HERZOG & DE MEURON reconsider the essence of House.

by Sarah Amelar

At first glance, Herzog & de Meuron's small dwelling in Leymen, France, appears to be the quintessential child's drawing of a house. With its single, self-contained volume, steeply pitched roof, and tall chimney, it's like a monopoly piece set in the hilly meadows of northeastern France. But on second glance, this modest structure appears both familiar and provocatively unfamiliar.

Cast in pale gray exposed concrete, this traditional form is hardly clad in the classic materials of the child's-eye view or the archetypical house. And, even more striking, this 1,700-square-foot building bears a curious relationship to the landscape—respectful and open to it, yet decisively setting itself apart, almost in opposition. Characteristic of Herzog & de Meuron, this dialogue with the natural context is unexpected and compelling. And like much of the firm's work, the project invites intellectual readings as well as purely visceral responses, alternately delighting, amusing, and confounding local observers.

Lying just a few kilometers from France's Swiss and German borders, the countryside of Leymen is scattered with small, rustic timber or halftimber houses and barns. With its traditional silhouette, Herzog & de Meuron's project fits right in—but not quite. On the approach along a narrow winding road, the small house looms from above on its hillside perch; oddly enough, the building's flat underside can be glimpsed from below. Raised on pilotis, the house is flanked by a cast-concrete reflecting pool and deck—lateral extensions of the first floor, forming a plinth. This simple horizontal plane does not carve into the hill or otherwise engage it. Instead, it hovers above the slope, accentuating the contrast between the terrain's undulations and the structure's level planes. The house, with its own attached site, seems almost portable—as if the whole assemblage could be picked up and moved. At the same time it's also site-responsive, with the elevated deck gesturing toward the hill, while allowing the landscape to flow around and beneath the architecture.

A work of gentle contradictions, the house appears both heavy and light: solidly cast in concrete, it floats visually on the strategically placed pilotis. A thick-walled monolith (without eaves and stripped down to its essence), the cottage also takes on a lightness and transparency at its large windows. Between uninterrupted expanses of wall,

Project: *House at Leymen, Haut Rhine, France*
Owner: *Hanspeter Rudin*
Architect: *Herzog & de Meuron—Jacques Herzog and Pierre de Meuron, partners-in-charge; Lukas Bögli—project architect*
Engineer: *H. P. Frei, Bauengenieur Basel, Mitarbeit F. Männel (structural)*
Consultants: *B. Sontag (concrete)*

some rooms reveal themselves fully from the outside, as oblique corner views pierce through the building to the landscape beyond. And though the platform appears unmistakably level, it's certainly not grounded; in fact, from some angles, the house and its base seem practically on the verge of tipping.

In another twist on expectations, the "front door" is accessed from the underbelly of the building, up a narrow flight of stairs—hardly the main entry to the iconic House. As Swiss-based Jacques Herzog and Pierre de Meuron discovered, French laws do not require a cellar, whereas Swiss building codes, says Herzog, mandate a subterranean refuge in case of war. Without basement laws, the architects were inspired to minimize or clear away whatever normally sits beneath a house, and to separate it from the ground. They reduced the mechanical room to a 170-square-foot plan and may eventually embed a freestanding wine cellar in the hillside. Without a basement, the entry stairs descend from the center of the house's smooth underside in a highly visible way. Like a retractable stairway, they are reminiscent of the steps at Fallingwater that drop down into the waterfall—but, in fact, they are substantial, unmovable, and solidly cast in concrete.



On the interior, the plan is simple. At the lowest level, a living/dining area, a kitchen, a small bedroom, and a bath surround the centrally located stair. Between the first and second floors, the stairwell is encased in white-painted loam, or adobe, walls that soar to the roof peak. This tall passageway—with its sculptural loam handrail, charcoal-gray concrete steps, and Corbusian composition of openings, is lit by a skylight, which plays off against a long, horizontal strip of fluorescent bulbs. Two bedrooms and a palatial bathroom occupy the second level. With a crystal chandelier whimsically hung from a 19-foot-high cathedral ceiling, the 220-square-foot bathroom is one of this diminutive house's grandest spaces. "I don't see the bathroom as a technical-functional space," remarks Herzog, "but as a wonderful place hopefully to celebrate a good sex life." Near the tub, sunlight streams in through a large south-facing window while a high interior opening catches oblique rays from the stairway skylight. The third level houses a mezzanine balcony with a skylit laundry room.

THE HOUSE WITH ITS PLATFORM APPEARS ALMOST PORTABLE—AS IF IT COULD BE PICKED UP AND MOVED.

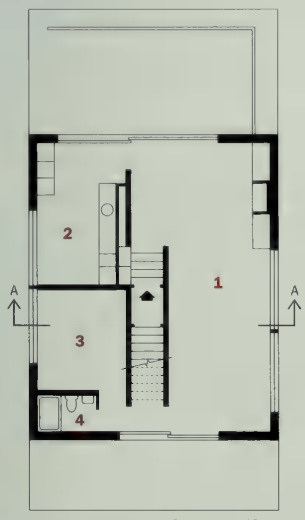
A strong connection with the landscape shapes the house's



SECTION A-A



SECOND FLOOR N



FIRST FLOOR 0 10 FT. 3 M.

1. *Living/dining*
2. *Kitchen*
3. *Bedroom*
4. *Bath*
5. *Laundry*





The "front door" is accessed from beneath the seemingly traditional house—up a narrow flight of concrete stairs (opposite and left) that lies directly below the soaring stairwell between the first and second levels.





The adobe-lined stairwell (above left and right) rises to the roof peak. A skylight plays off against a horizontal strip of fluorescent bulbs and an internal window that opens onto the palatial bathroom (below).

interior as much as its exterior. Wide, sliding, floor-to-ceiling windows, framed in oak, open the rooms to the fields and orchards. In warm weather, these openings can transform the interior; the kitchen, for example, virtually becomes a dining porch. Enhancing the ambiguity between indoors and outdoors, concrete flooring continues inside from the deck, and loam not only covers the walls but also surrounds the house as an indigenous clay in this rural terrain. (The name Leymen actually connotes loam, and recent visitors on a rainy day arrived with much of this tawny material caked to their shoes.) On the lowest floor, closest to the meadows, the adobe walls retain a natural sandy tone that gives way to white paint in the stairwell and upstairs walls, while the concrete flooring is supplanted by parquet in the bedrooms above. Daylight animates these surfaces, catching glints of straw in the adobe and trowelwork in the concrete, while reflections from the shallow pool shimmer onto the ceiling.



Just as the house's interior fluctuates with the light, Herzog and de Meuron envisioned the exterior changing significantly with the elements. Hoping to create a water-stained, mossy elevation, the architects designed gutters to channel rainwater down the west facade's outer edges into the reflecting pool. (At a larger building for the Ricola company in nearby Laufen, Switzerland, Herzog & de Meuron designed an entirely wet facade, directing rainwater down the building's whole face.) "We like to use water to change architecture," explains Herzog, "the way rain washes a piece of stone. Algae forms, reshaping and softening the hard edges."

In that vein, explains Herzog, "We preferred to retain the unfinished quality of the concrete so that the house could continue to evolve over time." Recently, he was pleased when a critic compared the House at Leymen to modest dwellings near the Adriatic that stand unfinished, yet are fully inhabited, with laundry flapping on the line. Indeed, the neighbors at Leymen keep asking the owner: "When will your house be finished?" The construction is complete, but if the seasons have their way, the house will remain a work in progress.

One could call the House at Leymen an icon, a pictograph, or an archetype—one might even call it generic or dumb (in a Venturian sense). When observers first see it, though, they often smile for reasons they can't quite identify—perhaps because its primal form taps into the long-lost pleasures of childhood. ■

Sources

Windows: *Gutzwiler, Hagenthal*
Roof: *Dirrig (built-up wood with slate-grain surface and metal eaves)*
Skylights: *Custom designed by Herzog & de Meuron with Gutzwiler, Hagenthal*
Concrete: *B. Sontag*



A lanternlike silhouette at night, the house reveals its inner workings through wide, floor-to-ceiling windows.



Glazed passages link the living-room pavilion (below) to the master-bedroom wing and the guest wing (opposite).

A spare and serene Long Island retreat by TOD WILLIAMS BILLIE TSIEN refines a classic Modernist paradigm.

by Suzanne Stephens



Architecture doesn't have to be astonishingly innovative to jolt the observer. The Rifkind residence, an impeccably crafted weekend home by architects Tod Williams and Billie Tsien, shows it can simply emerge from skillful use of the Modernist lexicon. Williams places the house's provenance somewhere between Philip Johnson's Glass House and a Los Angeles Case Study house, but actually any number of Modernist predecessors could be invoked. Because the architects brought together Modernism's tectonic principles with restraint and panache, the building has a timeless yet fresh quality. This is not the shock of the new, but of something extremely well done.



The low, unassuming complex occupies a three-acre site on Long Island's south shore with sweeping views of a large salt-water pond and towering black pines. The clients envisioned a place that would embrace the outdoors, "a tent in the woods"—albeit a 3,700-square-foot tent. Robert Rifkind, a Manhattan lawyer, and his wife, Arleen, a pharmacology professor, wanted to come here to read, work, and casually entertain their friends and grown children. "We have a traditional, crowded apartment in the city," Arleen Rifkind explains. "This had to be spare, uncluttered, and serene." They were already converts to classic Modernism, having summered for many years in a nearby house designed by Marcel Breuer and renovated by Joseph d'Urso. Needless to say, they didn't even consider the Shingle Style.

Williams and Tsien organized the house as three linked rectangular pavilions gently perched on a rise facing the water. On the entry side, the pavilions form a court, where the driveway and potting shed are located. From this perspective, so little glazing interrupts the expanses of cedar siding that the place almost looks closed for the season. "We tried to see how quiet it could be on the land," explains Williams. Nevertheless, the clean horizontal lines of the tongue-and-groove siding, marked by half-inch reveals, give the entrance elevations a strong visual presence.

The front entry is discreet, in a Modernist vein, with the foyer occupying a link between the main living pavilion and the guest wing perpendicular to it. On the living room's far end, a similar passage leads to a master-bedroom wing that matches the guest wing in size. "Tod is allergic to the arbitrary," observes Arleen Rifkind. "Everything is so balanced."

Upon entering this residence, the first-time visitor is suddenly riveted by the view: floor-to-ceiling windows frame an arresting panorama of water, trees, and the land's gentle contours. The dining area, efficiently placed between the foyer and the partially enclosed kitchen, looks out onto the water, as does the kitchen. The living room is surrounded by expansive window walls facing north and northeast, as well as the clerestory windows that wrap the 14-foot-high ceiling. A loftlike study overlooking the living room offers still more views; it opens onto a rooftop terrace, where one can glimpse the ocean beyond the pond.

The house clearly overcomes a drawback of many Modernist one-story buildings—the monotony of a uniformly flat ceiling plane.

Project: *Rifkind House, Long Island, New York*
Owners: *Robert and Arleen Rifkind*
Architect: *Tod Williams Billie Tsien and Associates—Tod Williams and Billie Tsien, partners-in-charge; Peter Arnold, project architect*
Engineer: *Severud Assoc.—Ed Messina*
General Contractor: *Andreassen and Bulgin—Ed Bulgin, principal; Frank Cafone, project foreman*
Consultants: *Robert Toole (landscape); Edison Price—Rick Shaver (lighting); Weber and Grahn (mechanical)*

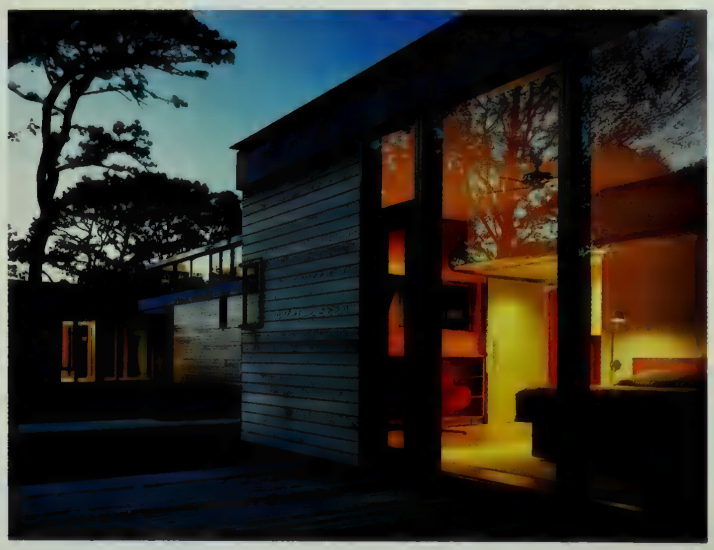




Williams and Tsien designed the rear of the house to open up to views of the pond through window walls and clerestory windows (above). Laminated long-span timbers, 16 inches deep and 50 or 60 feet long, depending on the pavilion's size, create ring beams that carry the clerestory and roofs; 24- and 20-foot I-shaped laminated beams span the pavilions. The cedar siding contrasts with the lead-coated copper fascia and flashing covering the ring beams (photos opposite) and the bluestone chimney (left).







1. *Guest room*
2. *Dining*
3. *Kitchen*
4. *Living-room loft*



SECTION A-A



1. *Entrance*
2. *Guest wing*
3. *Dining area*
4. *Kitchen*
5. *Living*
6. *Master bedroom*
7. *Study*
8. *Potting shed*
9. *Swimming pool*

Though most of the ceilings hover just under 10 feet, Williams and Tsien capped the kitchen at seven feet (à la Wright), in distinct contrast to the double height of the adjoining living room. A narrow, slotlike passage between the kitchen and window wall rises to the living room's height, a shift subtly emphasized by the latticed soffit that filters daylight from above.

The sequence of compressed and expanding spaces, extending from guest wing to living room, is calibrated to dramatize the vista of trees and water. "It gives you a sense," says Arleen Rifkind, "of walking past a Japanese scroll painting that goes on forever."

THE SEQUENCE OF VISTAS, OBSERVES THE CLIENT, "GIVES YOU A SENSE OF WALKING PAST A JAPANESE SCROLL PAINTING THAT GOES ON FOREVER."

The abundance of natural materials inside and out also marks the house's deference to Modernist tradition. Douglas fir lines the exterior walls, while honed and splitface bluestone paves the floors in the hall, dining area, kitchen, and living room, uniting the interior with the terrace. And the living room's massive bluestone fireplace has a strong counterpoint in the finely crafted, rectilinear cherrywood staircase and library.

If the house appears simple in its parti, the structure is more complex. To cantilever the roof over glazed corners, Williams and Tsien, in effect, created ring beams of long-span laminated timbers. The ring beam assemblage rests on bearing walls or columns; in the living room, in turn, it carries slender steel clerestory columns that support the roof.

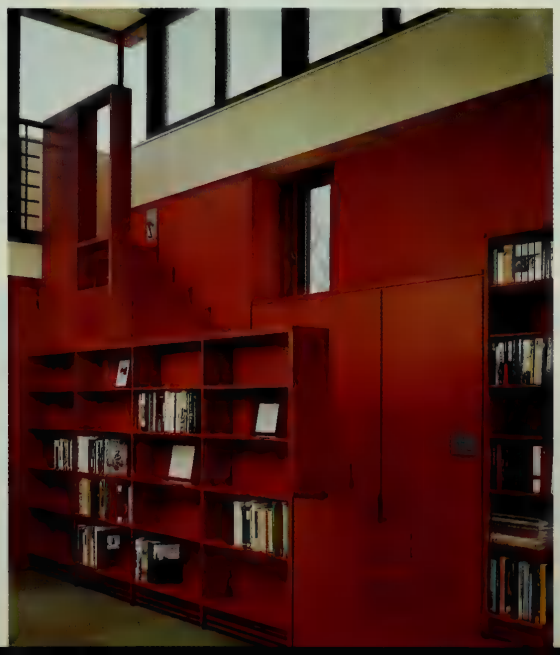
Throughout the house, skillful detailing provides a sense of scale and craft, animating otherwise abstract forms and surfaces. For example, Williams and Tsien turn solid exterior corners by keeping the cedar siding from meeting completely. Here they inserted a reentrant corner with copper flashing that recalls Mies's brick-and-steel details. As the architects are quick to acknowledge, the contractor's commitment to craft played a major role in the project's success—in, for example, working out the corner detail from the architects' sketch. "This is not off the shelf," says Williams.

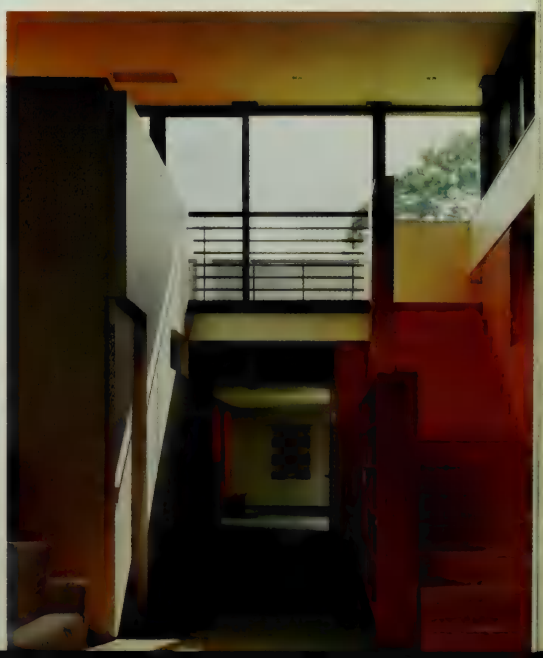
Besides having craft-conscious builders, it helped that the site was exceptional and the program uncomplicated. It helped, too, that the budget was decent (the actual figure has been withheld from publication) and the clients were interested in architecture and extremely receptive. Most important, the architectural idea was simple, straightforward, and not gimmicky. The architects were thinking about the human experience of space, light, and view as much as the overall form. As an accomplished synthesis of so many Modernist notions, the Rifkind house becomes paradigmatic of its type. "We don't care about being ground-breaking in design," Tsien says. "But we still feel we're moving forward." ■

Sources

Engineered lumber: *Trus Joist Macmillan*
Windows: *Duratherm Window Corp. (wood); J. Sussman Inc. (aluminum)*
Cabinetry: *Fabricated by Craz Woodworking Associates*
Skylights: *Insula Dome*
Stone: *Johnson and Rhodes Bluestone*
Custom wall panels: *William Somerville, Inc.*
Furniture: *Custom designed by Williams Tsien; fabricated by Stephen Iino*
Plants: *The Bayberry (plant suppliers)*

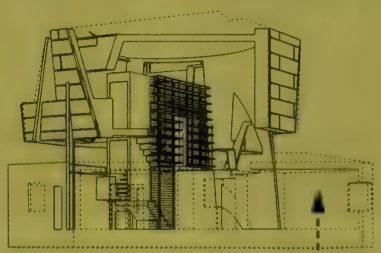
In addition to glass window walls, the living room is surrounded on three sides by clerestory windows (above); on the fourth side, glass doors lead from the study-loft (far right), overlooking the living room, to an outdoor roof terrace. A cherrywood staircase between walls of shelves (right) links the two levels.

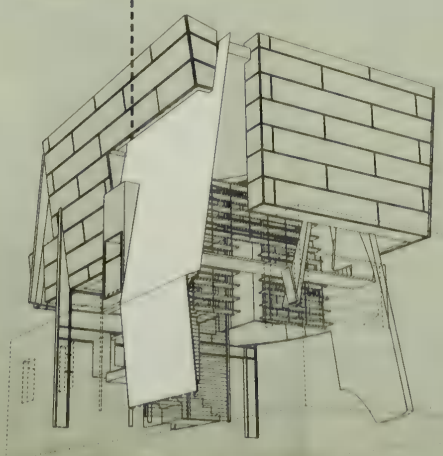












The addition, seen from the street (top), is a polyhedron that wraps around a truncated cone. The gleaming cone atop the remodeled one-story bungalow (above) is gradually revealed on the new south facade.

ELEVATION PERSPECTIVE - NORTHEAST VIEW

A polyhedron and a truncated cone rise from a traditional cottage transformed by **MORPHOSIS.**



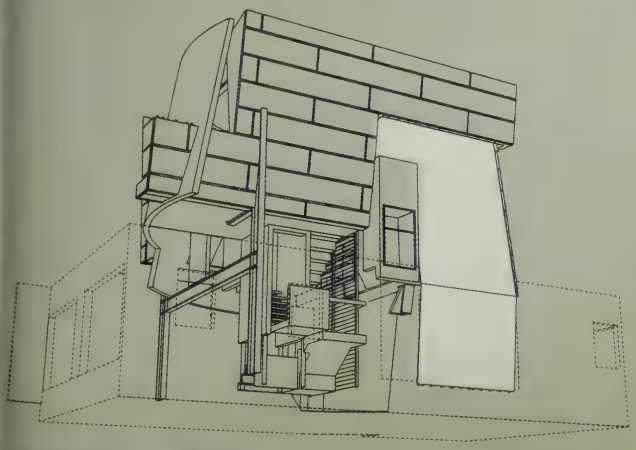
by Suzanne Stephens

The biggest thing about Morphosis's Landa House is the architectural concept. And that's sizable. The clients, Jutta Landa, a film professor, and her husband, Hans, an engineering consultant, had purchased a 1945 Mediterranean-style bungalow, set in Manhattan Beach, California, amid a picturesque jumble of small houses with handkerchief-size yards and picket fences. "We were looking for an architect—a modern one—who could put something on a small lot and not have it just look like a concrete box," Jutta Landa explains. They asked Morphosis principal Thom Mayne to renovate the bungalow and add space on the upper levels for a new study and master bedroom and bath while retaining the ground floor for an open-plan living room/dining area/kitchen, a family room, and a bedroom. The remodeled portion would total 1,067 square feet, the addition only 609 square feet. To complicate matters, the site was tight (a 30-by-100-foot lot) and the budget was limited to about $205,000.

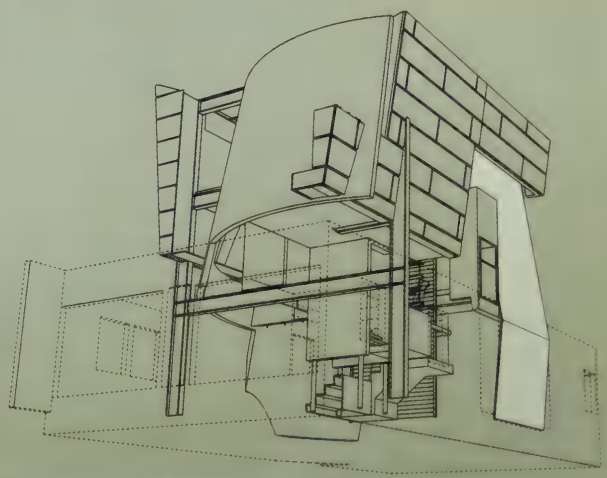
Considering that Mayne now operates on an international scale, designing office buildings, schools, and big-budget houses, one would think he'd have no time for the small stuff. Evidently not. "The scale allows you to investigate something in a focused way that can become an element of a larger work," he says. While this design solution reflects an unresolved tension between innovation and contextualism, it nevertheless demonstrates boldly how the perception of space in a tiny area can be exploited dramatically through architectural maneuvers.

Mayne accepted the limited budget and site with the understanding that "We would begin with a formal investigation and then work backward to make it function programmatically for the owners," he recalls. "You can do this with a house," he argues, "since the program is much more fluid than, say, that of a school."

The architect came up with a scheme that would remove the roof of the one-story cottage and insert a new two-level volumetric structure on top. A partial cube, distorted into a polyhedron faced in fiber-reinforced cement board, wraps around a truncated cone clad in zinc



ELEVATION PERSPECTIVE - EAST VIEW



ELEVATION PERSPECTIVE - SOUTHEAST VIEW



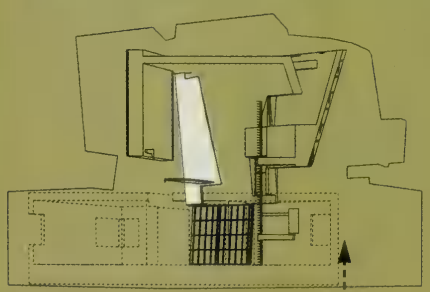
panels. The sleek, metallic gray structure sits on the remodeled base like a UFO tethered to the existing building's inner core. The new unabashedly overwhelms the old, making the stuccoed wood-frame ground floor a pedestal for the sculptural object above. Yet on the interior, Mayne successfully has created rich spatial effects, amplifying views and light with unexpected fissures of glass, all accomplished without violating the 30-foot-height limit and setback restrictions of the neighborhood.

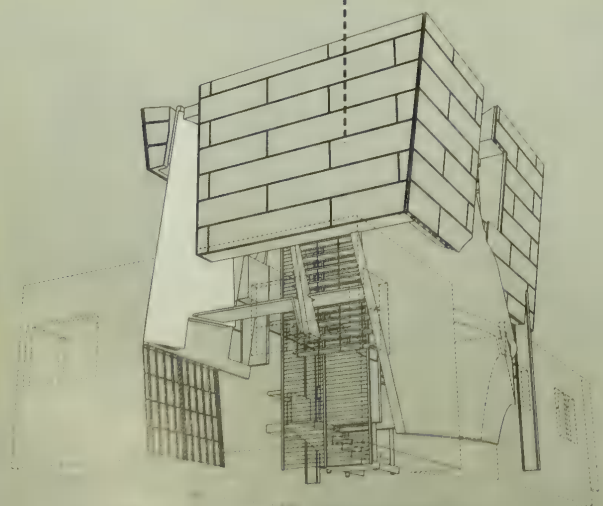
For years, Morphosis has shown a penchant for Platonic geometric forms and the rational qualities they bring to a design problem. At the same time, Mayne has demonstrated an urge to create radical collisions between volumes—to see how accidents and distortions can be resolved. Although other architects, in recent years, have experimented with non-Euclidean geometries and even "blob" formations (with no internally regulated shape), Mayne stands by his more formalistic approach. "The design process needs a fixed departure point," he states. "I may begin with these forms, but I don't have a strong image in mind about the result. At the end of the process, the original gesture may no longer be very visible."

The visitor entering the low-ceilinged first floor—a horizontal zone of rooms with conventional dimensions—is given only a few hints of the shape of things to come. The sole clues to the spatial dynamic above it are a partially curved wall enclosing the dining area, and crevices and light shafts in the kitchen ceiling. A central concrete stair (part of a core made up of a steel moment frame, with plywood shear walls, housing HVAC units and storage) leads up to the second level. Here the canted walls of the polyhedron and the curved, truncated cone begin to radically open up the interior spaces. A large glazed fissure in the study's front wall discloses views of palm trees and rooftops; glass slots at the interstices of the cube's and cone's overlapping walls admit additional ambient light. Library shelves of perforated steel allow even more light to suffuse the space.

The perforated stainless-steel stair between the second and third levels reinforces the sense of weightlessness and luminosity, which increases as one ascends through the house. Here, too, the truncated cone asserts itself, terminating in a curved metal wall that defines the master bedroom.

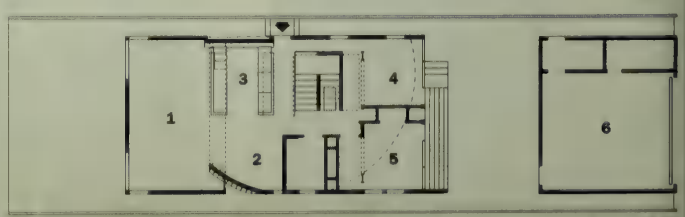
Mayne's design process leading to this solution involved models, hand-drawn perspective sections, and three-dimensional computer drawings. The computer enabled him to generate a series of elevations and sections at 12 rotated positions so he could study the resolution of forms from different angles. "You can't understand architecture in terms of a





ELEVATION PERSPECTIVE, NORTHWEST VIEW

1. *Living*
2. *Dining area*
3. *Kitchen*
4. *Den*
5. *Bedroom*
6. *Garage*



GROUND LEVEL

0 10 FT.
3 M.

fixed position," he remarks. "It's about moving through and around it."

Working within these rigorous constraints, Mayne creatively investigated ideas that could apply to other programs and larger scales—particularly ways to activate and open up interior spaces. The exterior, however, is more problematic. Here the weighty sculpture of interlocking forms may read as an autonomous unit, but it appears to be jarringly spliced onto the one-story white stucco base and its conventional architectural elements. Had there been a larger budget, no doubt Mayne would have designed the base to look more abstract (as it does in the model) and less like a house. Such objections, of course, depend on

MAYNE INVESTIGATED IDEAS THAT COULD BE APPLIED ON A LARGER SCALE.

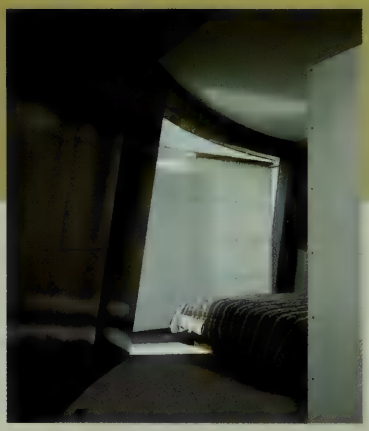
the observer. The clients like the way old and new are blended: "It is seamless," Jutta Landa maintains.

In addition, one expects the north elevation facing the pedestrian street to be the most important facade, a convention faithfully honored by the other houses on the block. Instead, the main entry and the most dramatic elevation, with its curved, gleaming metallic surface, face the freestanding garage and the car street to the rear. A more successful visual dissonance, oddly enough, occurs in the way the hybrid form fits into the beach-town context of cottages with gable roofs and American colonial or Spanish Mediterranean motifs. Indeed, the surrounding collage of parts and pieces of houses allows the sculpture to stand as an artifact popping up above a polyglot of red-tile roofing. The experiment, therefore, both answers and raises questions. As it should. ■

Project: *Landa House, Manhattan Beach, California*
Owner: *Jutta and Hans Landa*
Architect: *Morphosis—Thom Mayne, principal; John Enright, project architect; Brandon Welling and Frank Brodbeck, project team*
General Contractor: *Michael Lee*
Custom contracting: *Mauricio Gomez (shelving); Tom Farrage Co. (balcony)*
Engineer: *Mike Ishler (structural)*

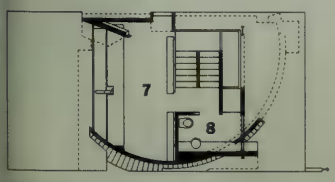
Sources
Fiber-reinforced cement board: *Supra-Board*
Metal panels: *Zincalum (Zactique finish)*
Stairs and decking: *Industrial Metal Supply (stainless-steel perforated)*
Plastic glazing: *Lexan*
Glass: *Architectural Glass Systems*
Granite: *Ara-promarble*
Paints and stains: *Hammerite*



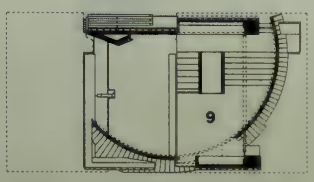


A perforated stainless-steel stair (above) between the library and the bedroom gives the space a luminous quality, enhanced by perforated steel shelving. Zinc panels line the bedroom wall (left).

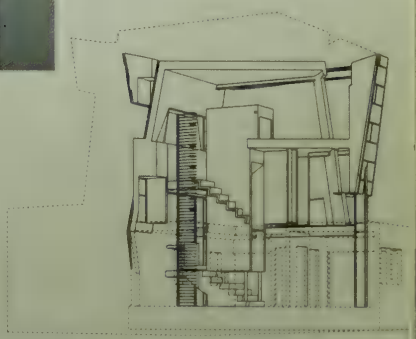
7. *Library*
8. *Master bath*
9. *Master bedroom*



FIRST LEVEL



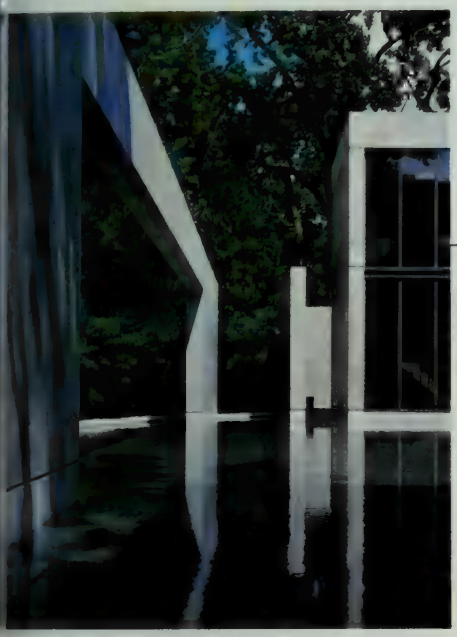
SECOND LEVEL



EAST-WEST SECTION



Building for the first time on American soil, Japanese architect TADAO ANDO tests the wintry waters of Chicago.



A shallow pool (opposite and left), for viewing only, is the contemplative focus of this museumlike house. From the vantage point of the entry wing (opposite), the private wing appears in the distance, beyond the ramp linking the living room and roof deck.

by Naomi R. Pollock, AIA

Few architects maintain as consistent a vision of what they think a house should be as the Osaka-based designer Tadao Ando. In his houses—as in his museums and churches—minimalist expression and exquisite concrete construction predominate, but they are modulated by daylight, wind, and water. The integration of natural forces activates the buildings' interiors, blurring the borders between inside and outside, often in ways that are unexpected in a home. While understated and elegant, Ando's houses are far from passive. Instead, the play of natural elements—even the manner in which light enters a room—is intended to challenge the everyday experience of the inhabitants.

These homes have met with great success in Japan, where the climate is forgiving and the tradition of interweaving interior and exterior deep-rooted. With his recently completed house in Chicago, Ando has had his first chance to test his ideas in America.

Located on the city's north side, where 19th-century dwellings and small apartment buildings fill street upon street, the house sits on a 75-foot-wide midblock site, a triple lot. Designed for a gay male couple as a quiet retreat from hectic urban life, the 5,600-square-foot house fills just a strip of its 14,000-square-foot site. Its simple concrete-walled entry does not exactly blend with its brick and graystone neighbors, but it maintains a subdued presence with a contemplative, inward focus.

Behind the plain wrapper lies a house composed of three discrete pieces: a two-story entry-and-guest wing in front, a three-story private wing in back, and a single-story living/dining room in between. As in many traditional Japanese buildings, a sequence of exterior and interior spaces leads the way inside. With each axial shift, the city is left further behind.

First, a grand stair directs visitors to an entry court some five feet above street level. From here a 90-degree turn reveals a second court aligned with the house's dominant north-south axis, running perpendicular to the street. Although an enclosed entry hall marks the last threshold from outside to inside, continuous stone flooring and glass partitions render that transition ambiguous. The hall provides a place for visitors to pause before proceeding to the living/dining room.

While the entry volume houses two guest rooms, the more private volume contains the kitchen, the library, and a bedroom suite on the first floor, with the master bedroom on the second floor and a study directly above it. A narrow stone-clad stairway links these levels. The intimacy of the study, a third-floor aerie lined with oak cabinetry and flooring, contrasts strongly with the large scale of the living/dining room below.

HERE MINIMALISM AND EXQUISITE CONCRETE WORK ARE MODULATED BY DAYLIGHT, WIND, AND WATER.

Set between parallel concrete planes, the elongated living/dining room serves as an essential circulation conduit, as well as the center of the house. The room's distinctive character is shaped by its monolithic exposed concrete walls, whose velvety surfaces and unadorned simplicity bely the tremendous effort behind their construction. Indeed, Ando's high-quality concrete work required rigorous supervision, as the forms, separators, and even some of the pouring techniques in Chicago differed from his Japanese methods.

The Windy City's climatic extremes called for a waterproof

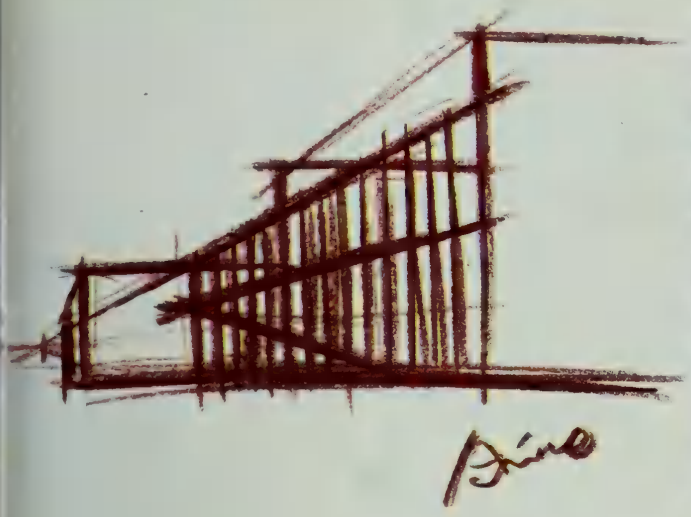
Naomi R. Pollock, AIA, is ARCHITECTURAL RECORD's Tokyo-based correspondent. She was guest curator of the traveling exhibition "Japan 2000: Architecture for the Japanese Public."

Project: *Private Residence, Chicago*
Owner: *Name withheld at owner's request*

Architect: *Tadao Ando Architect & Associates; Tadao Ando—design principal; Masataka Yano—project architect*

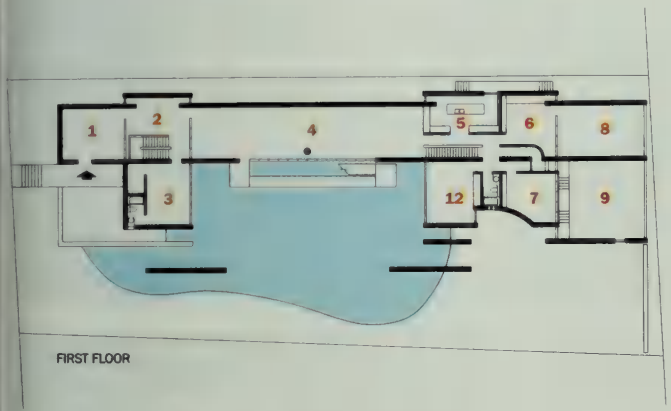


From the sloped walled garden at the house's south end, the long roof deck with its bull-nosed stairway is visible.

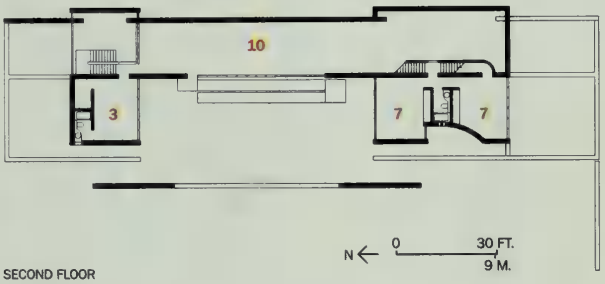




1. *Entry court*
2. *Entry hall*
3. *Guest room*
4. *Living/dining*
5. *Kitchen*

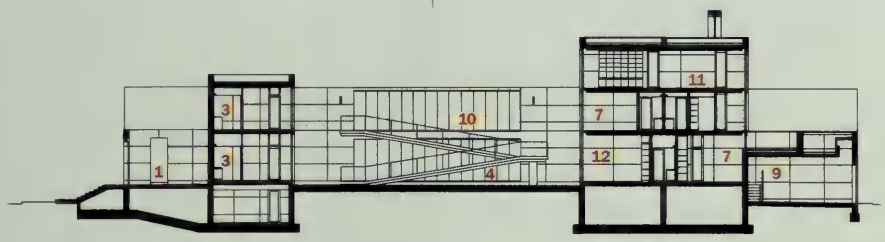


FIRST FLOOR



SECOND FLOOR

The ramp's scale may seem unusually large for a domestic setting, but it serves as a meditative walkway for viewing the pool and its surroundings.



6. *Library*
7. *Bedroom*
8. *Garden*
9. *Garage*
10. *Terrace*
11. *Study*
12. *Sitting room*

sealant on the wall's exterior surface, as well as a three-inch-thick insulation sandwiched between two six-inch-thick masonry layers. (Though such extensive insulation is unnecessary in most of Japan, where temperatures rarely drop below freezing, Ando had incorporated a similar triple-layer wall construction into his Church on the Water in Hokkaido.) Despite technical differences and language barriers, reports Ando, "a level of construction equal to that in Japan was attained."

Opposite the living/dining area's great wall, floor-to-ceiling glass panels interrupt the facing concrete plane, opening the interior toward a 2,000-square-foot reflecting pool that fans out from the building's edge like an extension of the main room. In stark contrast to the precise rectilinear architectural components, an undulating mound of gray limestone gravel outlines the curvilinear pool. The shallow basin holds a layer of water approximately five inches deep, designed to shimmer with gentle breezes and changing daylight. During the winter months, when the pool is drained, the great sea of limestone gravel on its inner surface becomes an equally powerful meditative focus.

The pool is "an exterior space but psychologically it is a room," explains Ando's project architect, Masataka Yano. Echoing the vertical planes of the living/dining area, freestanding concrete walls partially

DESPITE THE OBSTACLES, SAYS ANDO, "A LEVEL OF CONSTRUCTION EQUAL TO THAT IN JAPAN WAS ATTAINED."

enclose the pool and enhance its roomlike character. But this is not a room for entry. It is purely a visual experience.

The only direct physical connection between the living room and the pool is a small platform, just outside the living room door, that hovers over the water's surface and gives rise to an external ramp. The gently sloping switchbacks connect the living room to an expansive roof terrace above; but, more important, they provide places to survey the





scenery. The roof terrace is a habitable outdoor room for casual lounging, as well as occasional parties. Though exposed to the sky, it is enclosed by a concrete wall on one side and glass panels on the other, which shield the space while framing additional views of the pool and its surroundings.

THE MARRIAGE OF POOL AND HOUSE IS A DARING STRATEGY FOR CHICAGO, A CITY WITH BONE-CHILLING WINTERS.

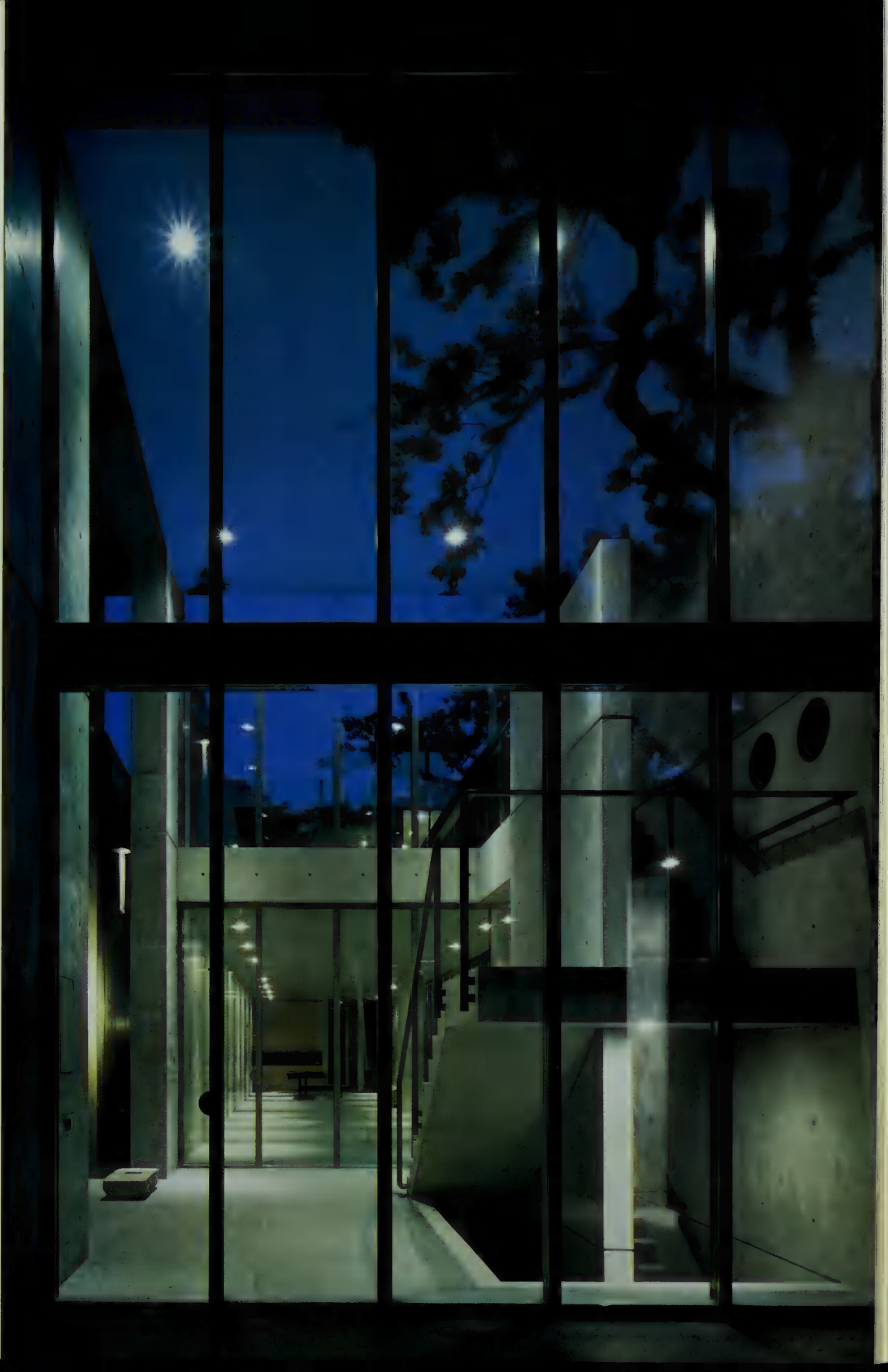
Beyond the pool, the landscape appears less controlled. Several clusters of trees mask unsightly utility poles and a neighboring alley while subtly drawing the eye beyond the property to the abstract forms of nearby rooftops and a distant domed church. The architect added several trees to the existing mulberries, maples, poplars, and locusts that he saved. By far the most spectacular of the rescued trees are two enormous poplars, one of which reigns supreme in the rear yard, where an arc was carved from the concrete in the private wing to preserve the tree's magnificent crown.

Though characteristic of Ando's work, the marriage of pool and house is a daring strategy for Chicago, where abundant snow and bone-chilling temperatures are the winter norm. Yet the two strike a delicate balance that is both stimulating and soothing. It comes as no surprise that Ando chose to transplant his vision to Chicago. What is remarkable is how well an architecture so intertwined with nature works in this urban setting. ■

Sources

Walls: *Exposed reinforced concrete (interior and exterior)*
Windows: *Custom extruded aluminum mullions, jambs, heads, and sills*
Glazing: *Insulating double low-e glass*
Roofing: *Gravel ballast with waterproofing polyethylene membrane*
Floors: *Granite and oak*
Exterior paving: *Granite*

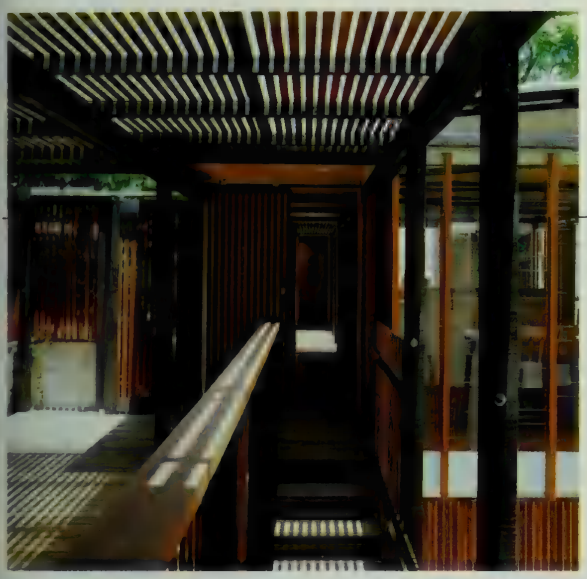
The ambiguity between indoors and outdoors is particularly striking at night. From the entry court, looking south through the two-story entry hall (right), one might mistake the indoor stair for an exterior element. This double reading is accentuated by the distant glazed plane, which serves as an indoor partition on the ground floor, separating the entry hall from the living room, but on the second level marks the edge of the roof terrace.





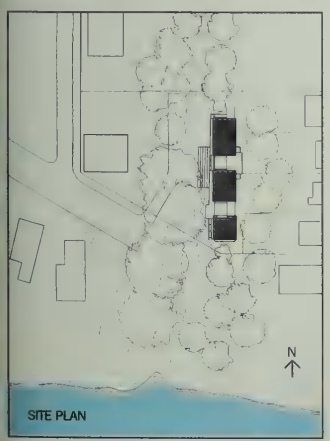
The north elevation (above) echoes the rhythm of the [illegible] (opposite), beneath acrylic roofing and batten screens, link the house's three pavilions.

Like a grove of eucalyptus trees, ANDRESEN O'GORMAN'S Rosebery House takes root in a lush Australian gully.



by David Clark

Gullies in the subtropical Australian city of Brisbane are magical places. Deep, lush folds in a hilly terrain, they are remnants of the original landscape, secluded by tall trees and layers of tangled vines from suburban neighbors on more buildable land. Wild and overgrown, the site of Rosebery House posed difficulties. Its gully retreats from the northern sun, running south down to the wide, meandering Brisbane River. The slope to either side is steep. A stormwater easement added building restrictions, as bridging the easement would have increased the cost considerably. The owners, a couple with two young children, had sold their house on the adjoining lot to build anew on the hidden piece of land they most loved.



With a small budget of U.S.$132,000, the task for Brisbane-based architects Brit Andresen and Peter O'Gorman was to intervene in this landscape without destroying its inherent qualities. "You have an obligation to the landscape to recognize that it's powerful—to honor it," asserts O'Gorman. His work with Andresen often explores the relationship between architecture and landscape, stressing what they consider to be the spatial importance of "the void over the object" and the need to "suppress the building to the site."

To emphasize the elongated shape of the gully—and the connection it forms between the hill and the river—the architects designed a long, narrow dwelling sited along the north-south contours of the terrain. Pushed to the lot's eastern edge, the 1,800-square-foot house turns its back on the suburban backyards to its east; its westward elevation faces the gully and a grove of mature camphor-laurel trees, which provide much of the privacy and scale of the landscape. To the south, only glimpses of the river appear through thick layers of foliage, as a strip of government land separates the site from the river's edge.

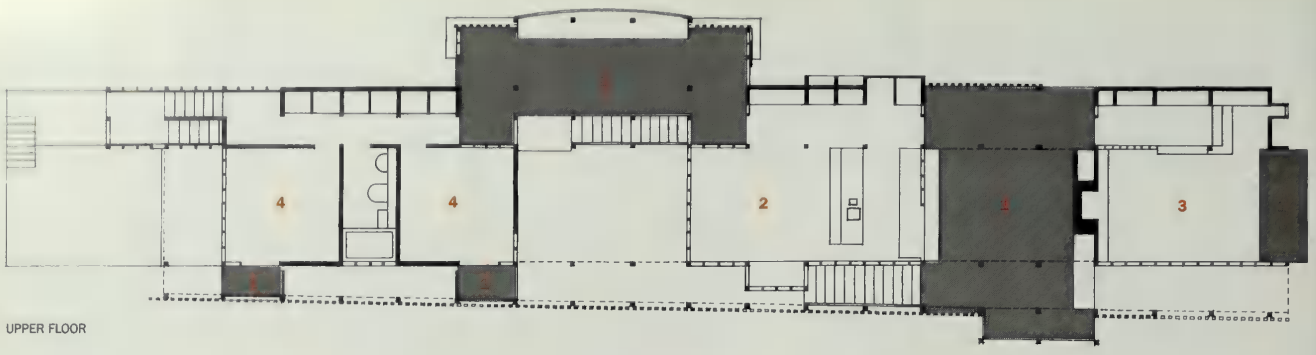
A priority of the design was to bring north light into a potentially gloomy place under the canopy of tall trees. (North light in Australia is the equivalent of south light in the northern hemisphere.) By breaking the building into three pavilions linked by semi-outdoor decks, the architects brought daylight into key interior spaces. Extensive glazing and sections of clear corrugated acrylic roofing, layered with timber batten screens, yield a quality of light that mimics the rays of sun filtering through the surrounding trees.

LIKE TREES IN A FOREST, THE BATTENED SCREENS FILTER RAYS OF SUNLIGHT.

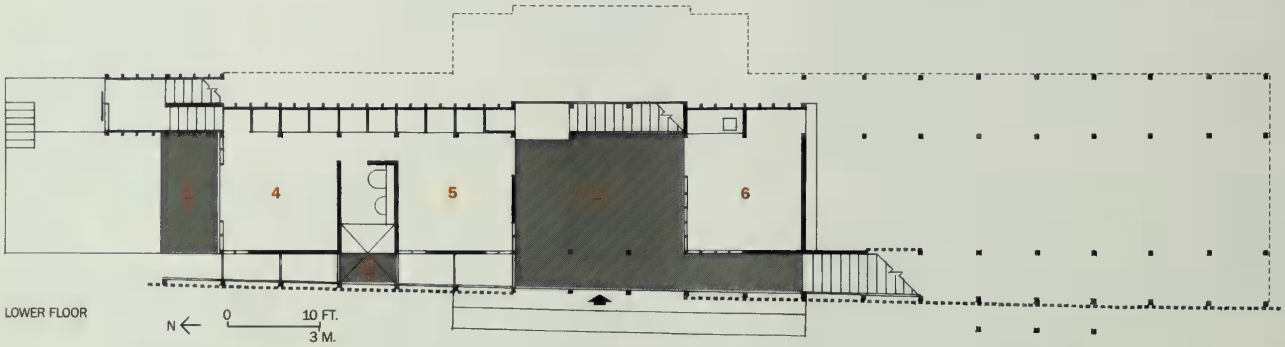
Exposed timber studs in the building's single skin provide a rhythm within the grove. This skin is partly opaque with plywood or fibrous cement boards and partly transparent with glazing and horizontal lead strips matching the scale of the trees' most delicate branches. Eucalyptus hardwoods—"strong, beautiful timbers," as O'Gorman describes them, "that allow for small sections and fine detailing"—are used throughout the house to reveal primary structure, along with secondary and tertiary elements. Again, the architecture evokes trees in the landscape.

Project: *Rosebery House, Brisbane, Queensland, Australia*
Owners: *G. Hooper and L. Weedon*
Architects: *Andresen O'Gorman Architects—Brit Andresen and Peter O'Gorman, partners-in-charge*
Engineer: *John Batterham*
Landscaping: *Andresen O'Gorman Architects*
General Contractor: *Lon Murphy*

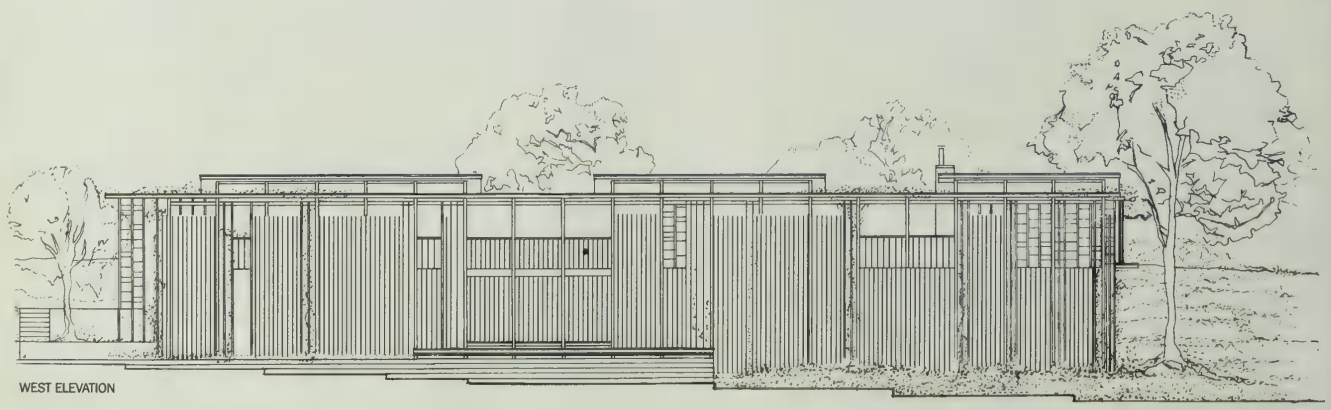
David Clark studied architecture at the University of Queensland. Based in Sydney, he is design editor of Belle *magazine.*



UPPER FLOOR



LOWER FLOOR



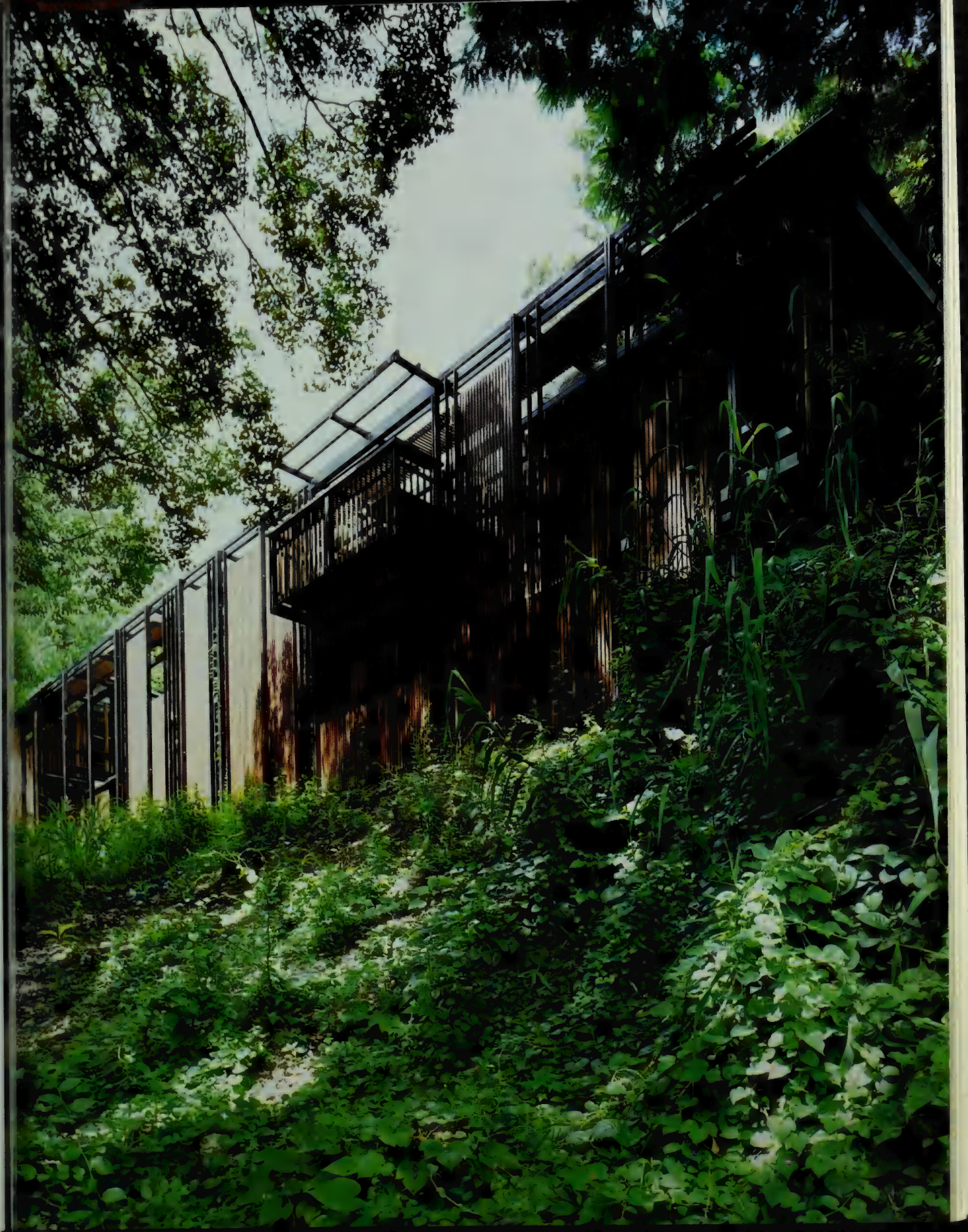
WEST ELEVATION

1. *Deck*
2. *Kitchen/dining*
3. *Sitting room*
4. *Bedroom*
5. *Kitchen*
6. *Printmaking studio/laundry*

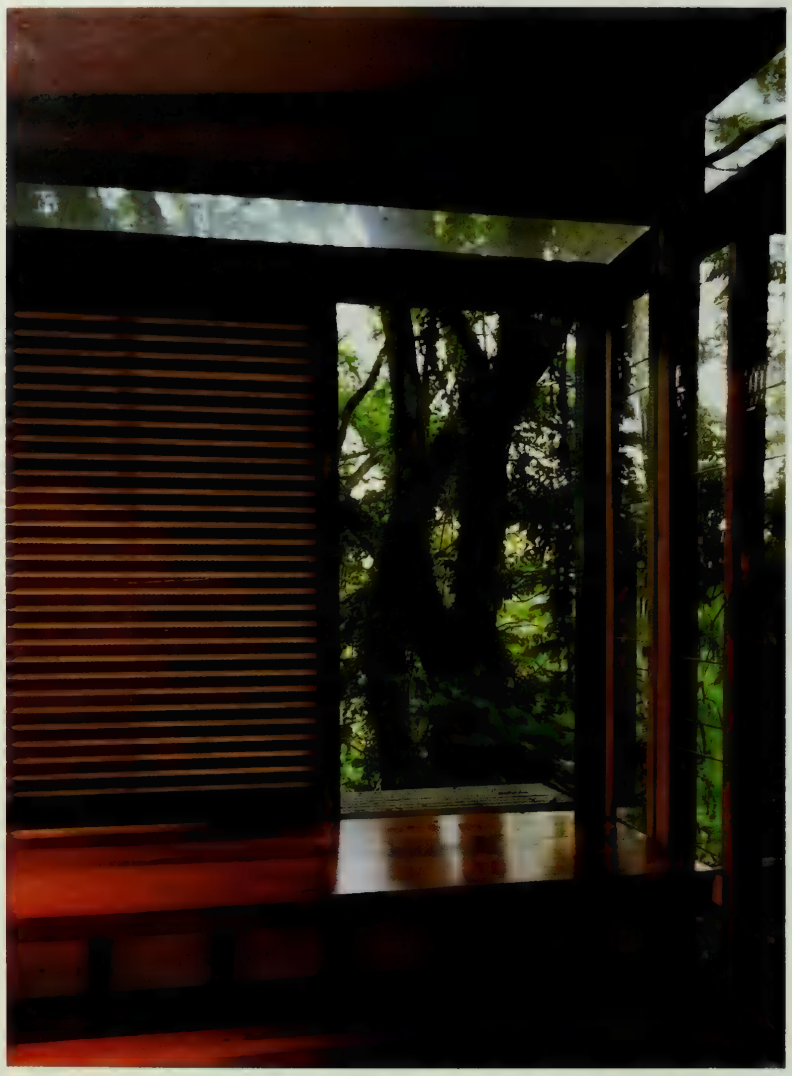


EAST-WEST SECTION THROUGH GULLY

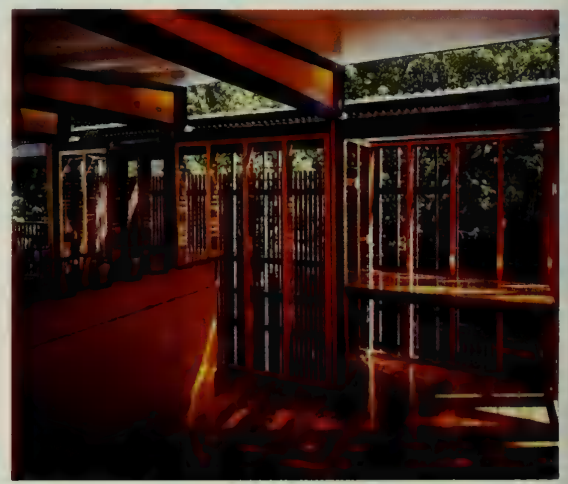
A battened screen along the western, or entry, facade (opposite) shades the building and mediates between the scale of the house and the gully. Balconies, stairways, and an outdoor shower occupy the interstitial zone between the house and the screen.



A rectangle of slender eucalyptus members continues from the facade throughout the house: from the private sitting room's **Zenlike sliding screen (below) and hearthside windows (opposite) to the light-filled kitchen/dining area (right top and bottom).**







Near the center of the long western facade, a double-height void marks the entry point. This elevation, approached from the west, is remarkable for its expansive semitransparent timber screen, which veils the building, masking its domestic scale and adopting the grander scale of the gully. Detached from the main body of the house, the screen mediates between the dwelling and its site. Constructed from indigenous eucalyptus hardwoods, this element has, as Andresen says, "a warp and weft as if woven from the trees." Over time, it will be covered with vines and creepers, she adds, "amplifying the sense of the gully."

Behind the entry screen stand the three pavilions, also constructed of eucalyptus timber. The middle—and most public—volume houses the kitchen and indoor eating area upstairs, with a laundry room below, which doubles as a printmaking studio for one of the adults who is an artist. The double-height outdoor room separates these communal indoor spaces from the northern pavilion, which is dedicated to sleeping and bathing. Here a master bedroom suite and study occupy the ground floor below the children's two bedrooms and a bathroom. The study and printmaking studio are connected by a ground-level deck in the double-height space, while a higher deck overlooks it, linking the second-story bedrooms with the kitchen and dining area. A southern deck runs between the dining room and the third pavilion, containing a single room—a den or private retreat—elevated among the trees. Set a few steps below the rest of the upper level, this retreat stands apart as a unique place. With a fireplace at one end, it also has sliding screens that open toward the trees and offer a glimmer of the river.

In this warm climate, the partially covered decks provide transitional spaces that enhance the rich experience of the architecture. They are ambiguous zones, at once part of the building and part of the





In this warm climate, shaded decks, protected from the elements by clear acrylic roofing, form semi-outdoor rooms (left and in wall detail below), effectively increasing the house's area from 1,800 to 2,700 square feet.



outdoors, that allow relaxed eating and entertaining while, the architects suggest, "giving some of the built form back to the landscape." Just behind the screen—a shading device that splays away from the building toward the river—are interstitial spaces, including balconies from the children's bedrooms and an outdoor shower off the master bathroom.

ENGAGING THE LANDSCAPE, THE HOUSE FUSES THE ORGANIC AND THE TECTONIC.

Three separate stairways add to the complexity of the house's interrelated parts, informally offering alternate journeys through the building and its landscape.

The architects envision the program evolving as time passes. The entire ground floor, for instance, might become the domain of teenage children as their parents move to the upper rooms. In the meantime, sliding screen walls can be pushed aside temporarily to transform the study, studio, and central deck (for parties or exhibitions) into a single platform—a veranda that overlooks the gully like a stage set in the landscape.

The house draws poetic and structural inspiration from the layering and transparency of the eucalyptus forests that once populated the region and still fringe the city's outskirts. Unlike Northern European or American trees, which can appear solid and impenetrable, Queensland province's eucalypti are sparsely foliated. "The structure of these trees is always obvious," observes Andresen. "You see all the trunks, branches, tendrils, and leaves. Because of this transparency, you can see the trees behind them as well. You see the layers of the landscape."

The traditional architecture around Brisbane favors light timber structures—simple boxlike forms elevated above the ground with attached covered verandas. This house shares much with the local vernacular, particularly in its materials, ambiguous indoor/outdoor spaces, and relaxed atmosphere. Unlike these conventional forms, however, which are replicated throughout the region regardless of site conditions, Rosebery House engages the landscape more directly by fusing the tectonic with the organic. Finely tuned to the climate, the views, the breezes and sunlight, this building in no way detracts from the seductive qualities of site. In fact, it enhances them. Providing comfort and enclosure, it is a house where one is always in touch with the spirit of the place. ■

Sources

Roofing: *Lysaghts (corrugated steel)*
Skylights: *Custom fabricated by Lon Murphy (corrugated acrylic)*
Fibrous cement boards: *James Hardies*
Glazing: *Custom fabricated by Lon Murphy (with lead mullions)*
Doors: *Custom fabricated by Lon Murphy (Australian eucalyptus)*
Windows: *Custom fabricated by Lon Murphy (Australian eucalyptus)*
Paneling: *Brims Ply*
Cabinetwork: *Custom fabricated by Lon Murphy (Australian hardwoods and plywood)*



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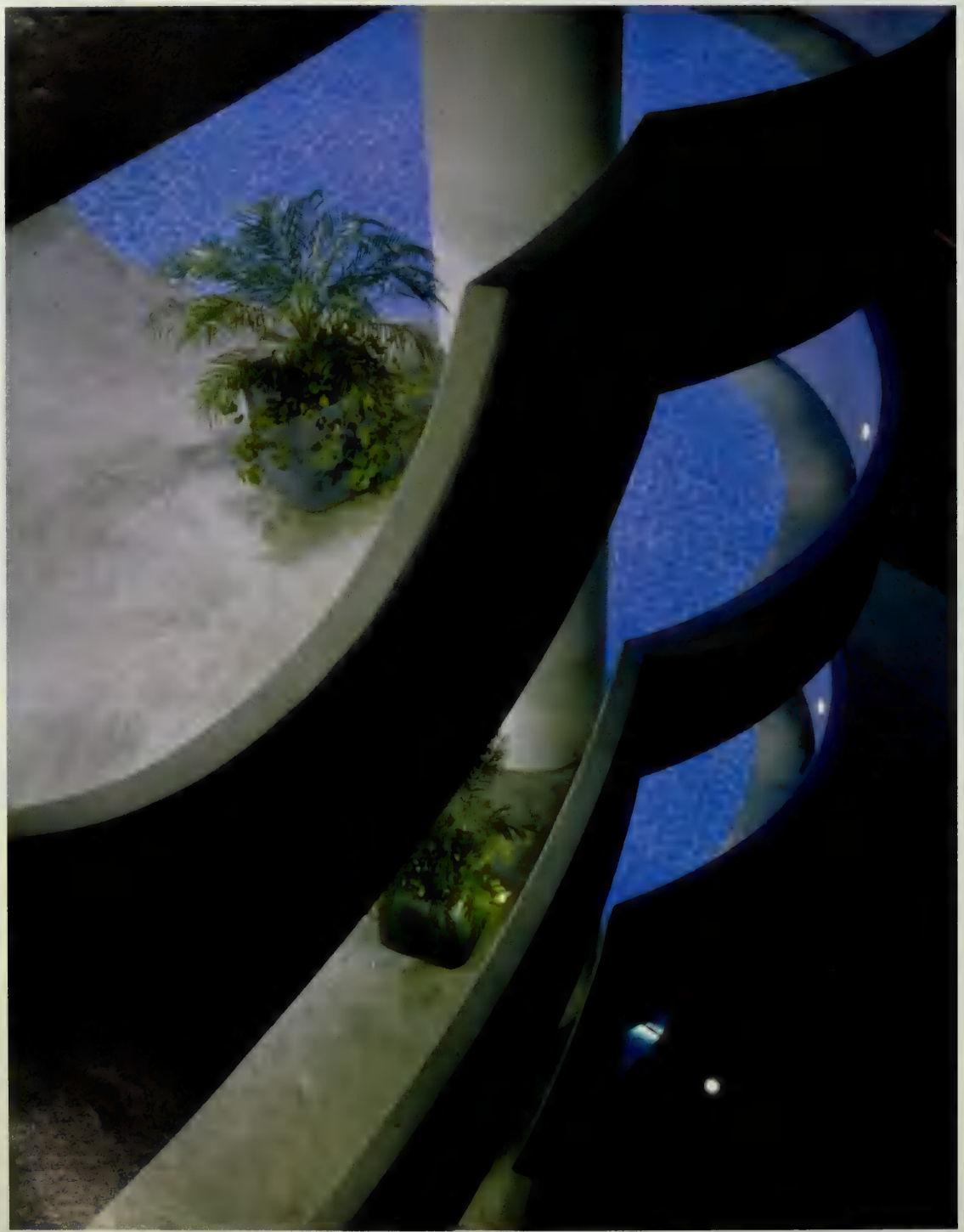
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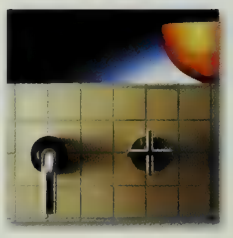
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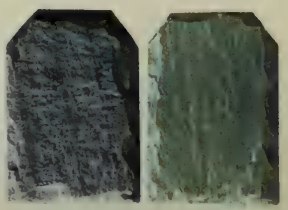
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Siting Houses in Hard Places

MUCH OF THE BEST LAND HAS ALREADY BEEN BUILT ON, LEAVING ENVIRONMENTALLY SENSITIVE OR OTHERWISE DIFFICULT SITES FOR ARCHITECTS TO GRAPPLE WITH.

by Elaine Martin Petrowski

Roger Williams, FAIA, used a machete to hack his way through the vines, poison oak, and thorny blackberry canes that impeded his path around the 48-acre site where his clients hoped to build a house on Lake Campbell, near the Puget Sound in Washington. Aside from the brambles and the dense undergrowth, there were symptoms of bigger problems. The ground was soggy from underground springs, while steep, rocky outcroppings and patches of slippery mud made the going treacherous. And the view over the lake was awesome—when you could find a level spot from which to admire it, says Williams, a principal at Mithun Partners in Seattle.

Clearly, building a house on this site was going to be difficult. But, like many architects, Williams has faced many of these difficult sites recently. Increasingly, houses are designed for sites no one would have dreamed of building houses on 20 years ago. That's because much of the desirable land in the United States and other developed countries is used up.

That leaves housing sites with shifting, swampy, or rocky soils, expansive clay, or underground springs; ecologically sensitive places, such as wetlands or places with rare and indigenous wildlife and vegetation, that can be built upon only if it is possible to do so with minimal impact on the terrain; land that floods each spring and fall; lots so steep that surely any house built there would tumble down the slope; or places so remote that it requires a helicopter, a barge, or other unusual methods to deliver building supplies and people to the site.

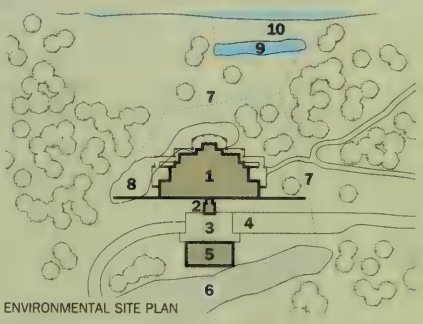
Lots in brownfield areas also qualify as places that are difficult to build on. These formerly undesirable locations are increasingly being used for home sites as land in urban locations becomes rare and expensive. Technically, a brownfield is any nonvirgin land, including industrial sites, former military bases, and building lots with or without rubble or waste. Using brownfield land preserves "greenfields" elsewhere. It also helps redensify and rebuild the urban fabric, since brownfields are typically infill areas. Architects can play an important part in making these sites suitable for residential use by concentrating construction on usable portions of the land and devoting other portions to roads or recreation, capping polluted areas with a concrete or clay slab, or creating a building





TWO LARGE RETAINING WALLS hold the soil, while an extensive drainage system keeps water from an underground spring out of this house on a steep site near Lake Campbell, Washington.

1. *Residence*
2. *Entry pavilion*
3. *Entry tunnel*
4. *Drive*
5. *Garage*
6. *Spring*
7. *Drainage line*
8. *Sandy soil pocket*
9. *Pond*
10. *Lake Campbell*



ENVIRONMENTAL SITE PLAN

CONTINUING EDUCATION

Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD/ AIA Continuing Education article. To receive credit, turn to page 158 and follow the instructions

LEARNING OBJECTIVES

After reading this article, you should be able to:

1. Explain the problems of designing houses that will be built on steep slopes.

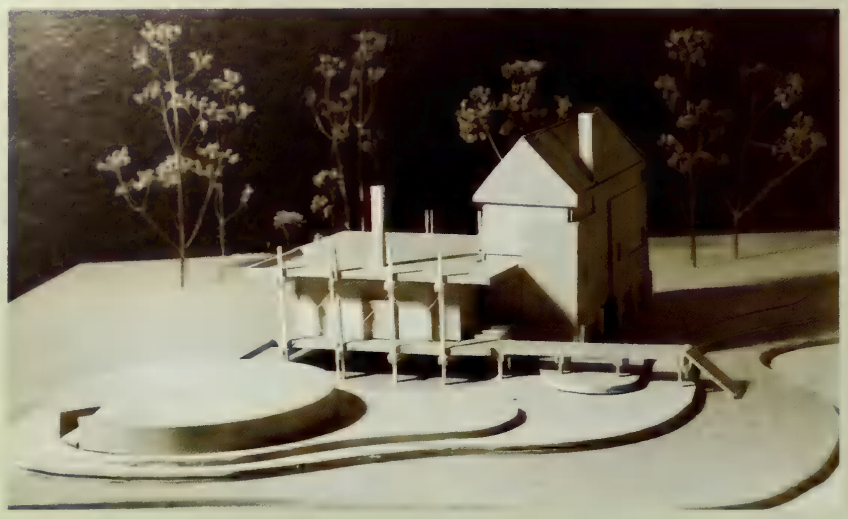
2. Discuss the methods used to drain water from building sites and protect foundations from moisture.

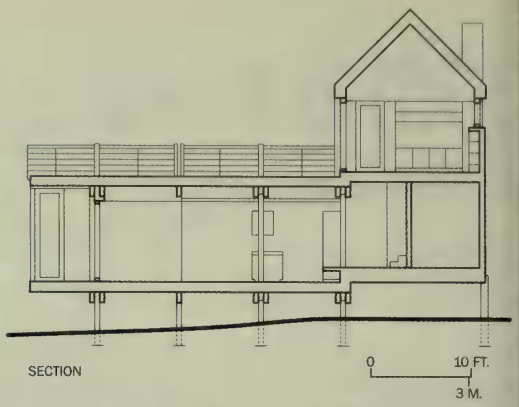
3. Identify issues involved in building on brownfields.

4. List the problems that come with building on secluded sites.

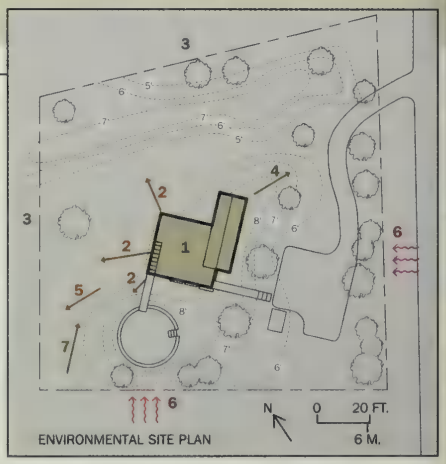
5. Discuss issues of building on wetlands.

Elaine Martin Petrowski is a freelance writer specializing in housing-related topics. She is based in Ridgewood, New Jersey.





ONCE BUILT, this house, by bnk Architects, will sit atop 30-foot-long piles, approximately 20 feet of which will be below grade. To create a septic field, the loam will be excavated and replaced with less-porous fill to prevent contamination of the groundwater. The fill area will be regraded and contained within a circular stone wall as a landscape element.



foundation that steps around problem areas so that they remain undisturbed.

Challenging sites affect more than the foundation. They frequently dictate the way the house looks, how it is built, and the materials that are selected. Williams's clients, for instance, originally envisioned a brick Georgian mansion on their hillside. They got a rambling contemporary made of concrete masonry units. "The site nullified the symmetrical Georgian look and forced us to come up with something completely different," he says. "The result is a house that probably wouldn't work anywhere else, but is just right for this site."

The following case studies illustrate a few of the options for architects building on tough sites. In each case, engineering gymnastics, extensive field studies, lots of extra time, and legions of consultants were required. Additional costs on these kinds of sites are a given. As David Kriegel of bnk Architects in New York City points out: "Builders, subcontractors, and engineers who do residential work deal with the same forms and technology again and again. When you have a new approach, they need to take the time to think about it. If they have to think about it, you will pay a premium." In addition, engineering fees, consultants' costs, and the sheer pragmatics of getting equipment on and off steep, rocky, or touchy sites add to the expense.

"It's essential that your client understand what he or she is getting into before design starts," Williams says. One of the reasons he was hired for the Lake Campbell project is that he showed up to walk the site before discussing costs and design ideas with his clients. "You have to tell your clients up front exactly what the problems are and how they will affect the work."

UNIQUE SITES MAKE ARCHITECTS WORK HARDER AND PROVIDE THE CHANCE TO INVENT SOMETHING NEW.

But difficult sites also carry the potential for problems never encountered before, which gives architects an opportunity to create new designs and solutions. "Unique sites make you work harder and provide you with the opportunity to invent something new," says Dan Wheeler, FAIA, of Wheeler Kearns Architects in Chicago. "In that sense, they are refreshing."

Steep sites, shifting soil

In some regions, steep sites are becoming a way of life for architects.These regions include the western coasts of the United States, Canada, and Mexico, where people want to build along the sloped shoreline, or where encroaching population is forcing development up the sides of mountains.

Williams has done enough work on steep slopes that he is no longer intimidated by them. "The land nobody wanted the first time around because it posed too many problems or was too far away—that's what we're building on these days," he says. "The good news is these sites often have the best views."

There are ways to stabilize a slope and, thus, prevent erosion, which is what can ultimately undermine the foundation. The rate of erosion is determined by the porosity of the soil, the gradient of the slope, and the volume and velocity of water runoff. While engineers use a formula to determine what measures must be taken to stabilize the land, there is a point at which restraining the soil becomes impossibly

expensive, says Bill Horak of Anvil Corp., in Bellingham, Washington, who did the geotechnical survey work at the Lake Campbell site.

A slope stability analysis should be conducted to determine the best way to grade the site and design the foundation, he recommends. One way to minimize excavation is to drive piles or sink step-down footings, which must be embedded at the proper depth below the face of the slope so that there is a safety factor in case of erosion. This approach, if carefully done, preserves the site and the vegetation—which plays a big part in holding the soil in place.

Alternately, the slope can be reshaped and fortified by excavating the soil and replacing it with materials that have greater stability, such as a combination of soil, stone, and geotextiles. Or the slope can be terraced. Both of these choices mean tearing up the site, an option that was not acceptable to Williams' clients—disturbing the vegetation would alter the natural habitat and result in excessive runoff into the lake.

Williams had to find a way to step the house down the slope, funnel the moisture away from it, and somehow secure the foundation—all with minimal impact to the environment. He started by developing a concrete and masonry retaining wall, measuring 25 feet in height and 230 feet in length, a portion of which doubles as the back wall of the house. The wall, in effect, forms a terrace that holds the soil. By tucking the garage into the hill, the back and side walls of that building also serve as retaining walls, as do the side walls of a passageway between the garage and the house.

The architect also had to take into account the quality of the soil. Borings were done before work began, but excavators later discovered a pocket of sandy soil that "went all the way to China," Williams says. The foundation had to be reengineered during construction, making the footings wider to distribute the load over the sand and provide a more stable base. "This proves that you can do all the preliminary work and still there are delays and added expenses."

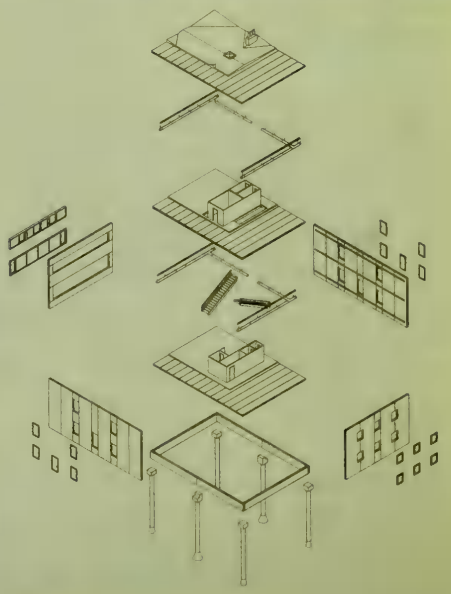
Any time the grade and soil are disturbed, the flow of water is altered. On this site, a spring posed additional problems. Unless properly directed, the water would have infiltrated the house. Channeling storm water away from the slope was equally important. "Our aim was to drain the soil as fast as possible so the slope would remain stable," Williams says. He devised a small network of drain lines to carry the water to a retention pond near the lake that slows the rush of water and gives silt a place to settle out. This pond is also a landscape feature.

Williams, together with a waterproofing consultant, came up with a moisture-protection system for the retaining walls that would seem like overkill on any other site. It includes a waterproofing bituthane and betonite membrane applied over the concrete; a half-inch preformed

THE BEHAVIOR OF DRY SOIL CAN BE PREDICTED, BUT WET SOIL SLIPS AND SLIDES IN UNANTICIPATED WAYS.

drainage mat with filter fabric that catches and drops the water before it reaches the waterproofing; six-inch perforated PVC drain pipes that collect water at six-foot intervals and drain it to the catchment system; a 12-inch-thick wall of gravel that speeds the flow of water to the pipes; and nylon mesh outside the gravel that filters fine soils that could clog the drainage system.







BROWNFIELD CONSTRUCTION brought an unusual set of design problems for Wheeler Kearns Architects, who designed this house in downtown Chicago. The site was filled with rubble from previous buildings. Removing the debris would have been costly, so the house was built atop a series of caissons that were drilled through the rubble. The walls are precast concrete, which went up quickly and met city fire codes.



Should we build here at all? Sand dunes, like rows of granulated waves, once moved along the seashores in Virginia. Now there are houses. In Montana, towering pines once marched over mountaintops while streams hurried past. Now the peaks have been shaved and the land cleared to make way for ranches. In California, the rocky cliffs along the beach used to be home to seabirds and small stands of tenacious trees. Now there are houses clinging to the ledges.

"Just because it's physically possible to build on a parcel doesn't mean it makes long-term sense to do so," says Eric Goldstein, a senior attorney with the Natural Resources Defense Council. But communities often lack vision, even when it comes to environmentally sensitive sites. This is not just something that was true historically, he adds. "Houses are going up in ridiculous places right now."

Ridiculous, in this sense, means two things. Not only are houses going up in places where the ecology is fragile, but also in precarious places—pinned to sheer rock, teetering on piers above flood zones, or hovering over swamps—places where "houses have no business being built in the first place," says David Kriegel of bnk Architects in New York City. "It just proves that anything can be built on if you're willing to throw enough money at it. But do you have any semblance of what the conditions were that drew you to the site in the first place?"



Often, where a house is built is not the architect's choice. "Your choice becomes, 'What are the client's priorities and how do I meet them and still protect the environment?'" says Dan Wheeler, FAIA, of Wheeler Kearns Architects in Chicago. The firm recently completed a home in rural Michigan. The owners wanted to respect the gently sloping site and disturb the land as little as possible, while taking advantage of the view of the hillside meadow beyond.

The house (left) sits with its broad side against the sweep of the land. Mounting the house on pilotis helped minimize the impact to the site—both visually and environmentally. "Raising the house allows the existing topography to run underneath and leaves the watershed undisturbed," explains project architect Mark Weber.

Preserving the natural flow of water should be a priority on any project, says Muscoe Martin, AIA, of Susan Maxman & Partners, who is the current chair of the AIA Committee on the Environment (COTE). "The architect needs to look beyond the confines of the building walls," Martin says. "Respect the natural topography and the watercourses; the flow was being handled perfectly before we got there."

Gail Lindsey, AIA, of Design Harmony in Wake Forest, North Carolina, and former chair of the COTE, agrees. "Sometimes I think architects should refuse to design homes for these fragile sites," she says. "But then I realize that at least when we are involved in these projects, it's in an educated and informed manner. As architects, we can make informed decisions and preserve what is there." *E.M.P.*

Used land

It sounds like a recipe for disaster: clients with a minimal budget who want to build on a 48-foot-wide urban lot in a busy commercial area in Chicago with extensive subsoil debris and foundation rubble from old buildings. Yet it is the kind of situation that many designers face, including Wheeler Kearns Architects.

"The urban environment is tremendously complex—not only because these sites have been built on already, but because there are adjoining buildings to contend with," Wheeler says. Some of the problems are pragmatic: material handling, parking, and cranes are all more difficult to coordinate in tight spaces. Security measures in dicey neighborhoods and establishing good relations with existing neighbors are problems many architects and homeowners fail to consider.

THE EXTENSIVE ENGINEERING INVOLVED IN STABILIZING BEACHFRONT LAND IS OFTEN NOT WORTH THE COST.

But perhaps the biggest expense is testing for and abating hazardous pollutants. "You just can't predict what you will find on some of these sites—even after extensive research into the historic uses of the land," Wheeler adds. Mitigating contamination can mean anything from delicately excavating around buried hazards to calling in the Environmental Protection Agency and initiating a full-fledged cleanup.

"All of these are obstacles," Wheeler says. "But each obstacle becomes part of the building context and informs the design. Expressing the conflicts and resolutions should be a design opportunity, not a limitation."

At the Chicago site, the project engineer suggested leaving the rubble in place and incorporating it into the design. "A lightbulb went on," Wheeler says. Taking a cue from the surrounding commercial construction, the architects decided to make the home/office (the clients are graphic artists) out of the precast concrete. This helped minimize labor and expenses as well.

Work began by drilling through, rather than removing, the rubble to install six site-cast concrete caissons. These are 43 feet deep in order to reach bearing-capacity soil. Insulated concrete grade beams span the caissons and support the structure. The drill team installed steel casings 12 feet deep to hold the old rubble walls in place and reduce risk to the properties adjacent to the new house, says Joseph Burns, AIA, a structural engineer and principal at Thornton-Tomasetti in Chicago. The method and materials minimized the staging area. The structure was erected in four days and the final cost was $79 per square foot.

The cost of seclusion

Island and beach sites bring new challenges to the equation. As more and more people choose to live near the water, houses are put in increasingly precarious places. Many beachfront structures are designed to give way when there is a storm or a flood and dissolve into the sea. Adding bulkheads or other devices to stabilize the waterfront and the house involves such extensive engineering that these efforts are not worth the cost—to say nothing of how such measures alter the ecology of the site. In addition, many architects, following the advice of coastal geologists, feel that nature has a right to "win."

This view is extreme, says Gail Lindsey, AIA, of Design Harmony in Wake Forest, North Carolina, and former chair of the AIA

Committee on the Environment. "Architects can see sensitive sites as an opportunity to participate in and to educate clients about environmentally sound building practices," she says. "If you're going to build on the site, you can make a house that will stand up to all but the worst storms without a lot of extra expense." Also, she says, there are not many homeowners willing to go to the trouble and expense of building something that won't exist after the next hurricane.

At Dewees Island, a 1,206-acre island north of Charleston, South Carolina, the ecological guidelines created by Burt Hill Kosar Rittelman limited development to a maximum of 150 home sites, none of which may be larger than 5,000 square feet or disturb more than 7,500 square feet of land, including driveways, paths, porches, decks, patios, and easements. Houses must be sited to minimize the number of trees removed, and built within the maritime forest, well back from the sand dunes. Lawns are not permitted.

Lindsey was required to conduct an environmental analysis for the 5,000-square-foot house she designed for a two-acre site on the island. Her firm did the work, plotting the variety and location of the vegetation, the path of the sun, and the way water flowed over the site. A meteorologist was hired to analyze the prevailing breezes and how the new structure would affect wind circulation at adjacent homes.

The outcome of the analysis was a greater awareness, for both Lindsey and the homeowners, of the natural dynamics of the site. For example, some of the palmettos that stood where the house was to be built were moved instead of destroyed. The homeowners recognized the value of retaining all the vegetation—both in stabilizing the soil and providing precious shade.

The logistics of building on the island were more problematic than any design limitations, Lindsey says. There are no bridges to the island and no paved roads or cars; residents zip around in golf carts. Supplies were ordered on an as-needed basis and carefully scheduled for delivery by barge. Workers were ferried, six at a time, with round trips taking 30 minutes. Construction waste was recycled or carried off the island. Altogether, these limitations added 25 percent to the price of the job.

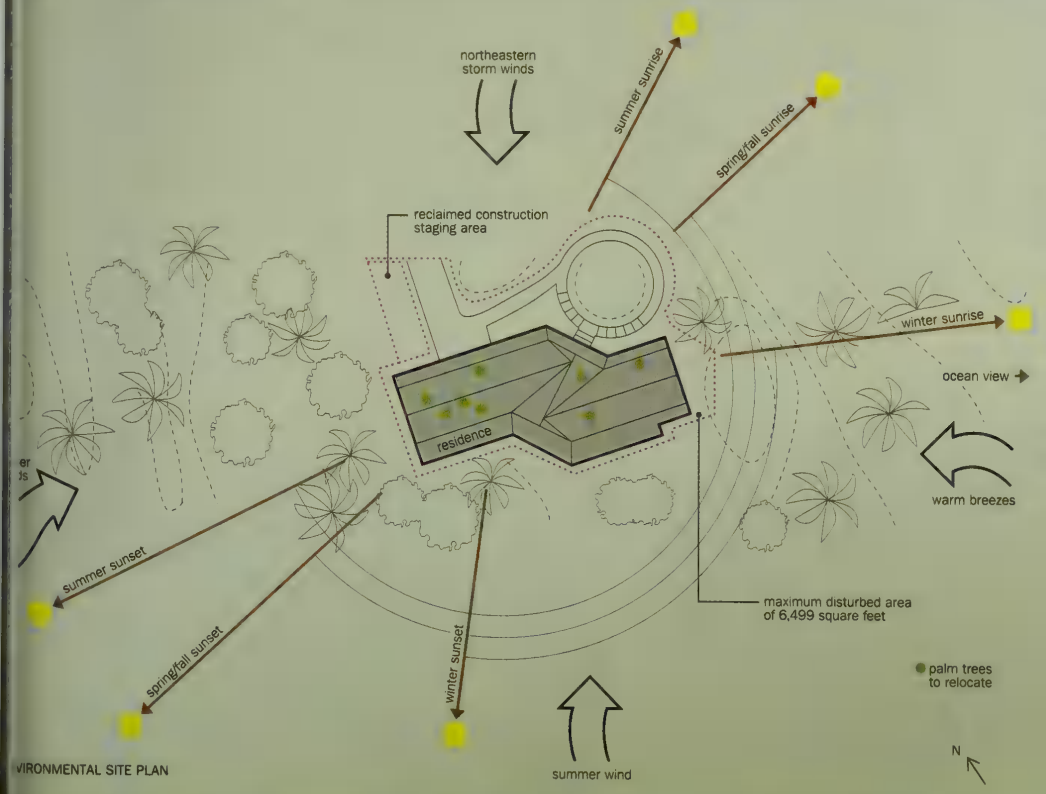
FEW TOPICS HAVE MET WITH MORE CONTROVERSY IN THE DEVELOPMENT WORLD THAN WETLANDS REGULATIONS.

Working with an experienced builder helped the process. "On a difficult site, I prefer to involve the builder from the start and look for someone who is open to trying something different," she says. "All the expertise in the world is not a substitute for a good relationship."

Uh-oh, wetlands

Few topics meet with more controversy in the world of homebuilding than wetlands regulations. That's because the terminology, originally presented in 1977 in the Clean Water Act, is vague and confusing, according to a March 1999 overview of the subject by the National Association of Home Builders. Wetlands, whether adjacent to salt or fresh water, are broadly defined by the vegetation that is found on them, not by the presence of standing water. In fact, they may be miles from the nearest body of water and include land that is boggy only a few days out of the year and deceptively dry at other times.

The federal government's official policy toward wetlands is "no net loss." This is interpreted in various ways by each state. But, in general, existing wetlands may not be endangered and any damage that is done to them during construction must be mitigated or compensated for by creating new wetlands elsewhere. The net result is that areas near wetlands are not only, in many cases, difficult to build on, but are also subject to layers of regulations—federal, state, and local.



VIRONMENTAL SITE PLAN

AN ENVIRONMENTAL ANALYSIS is mandatory for houses to be built on Dewees Island in South Carolina. Design Harmony conducted their clients' analysis with the help of a landscape architect and a meteorologist. Special attention was paid to the prevailing winds and how the new house would affect the breezes destined for neighboring dwellings. Based on the analysis, the homeowners decided to relocate palmettos that were within the footprint of the house to another place on their property, rather than simply cutting them down.

Once architects wend their way through the permitting process, which often requires costly assistance from an environmental consultant, they must figure out the best way to stabilize the site for building, design a suitable foundation, and limit runoff—all within the framework of local restrictions.

Architect David Kriegel is in the bidding process for the construction of a house in North Haven, New York, on Long Island's Peconic Bay. The 3/4-acre site is adjacent to wetlands and is on a flood plain. The new owners hit groundwater by digging 12 inches down, and the soil is soft and wet most of the time. Kriegel had to "do some homework" to understand the best way to build there. His best source was the Federal Emergency Management Administration, whose Web site and publications, including the "Coastal Construction Manual" (February 1986), provided design specifics. He also worked closely with local building code officials who, he says, "are familiar with the area and have a wealth of information."

According to state regulations, houses cannot be built within 75 feet of designated wetlands. FEMA stipulates that the finished floor and mechanical systems must be eight feet above sea level. Runoff from the site must be limited, since a rush of fresh water will affect area salinity levels, harming the wildlife and vegetation.

Local health department regulations require that the septic field be elevated far enough above the groundwater to allow room for the sewage to leach. As a result, the sandy loam in one area of Kriegel's site must be be excavated to a depth of 12 feet and replaced with a less porous fill to create a septic field. The architect's plan calls for containing the field, which must also rise three feet above grade to make room for the sewage to leach below, in a circular stone wall. All of this will add at least $15,000 to the project.

The home will rest on treated-wood pilings, which go down 20 feet through a mix of sand and decaying vegetation to reach load-bearing soil. Instead of creating a platform atop the pilings, Kriegel will try to incorporate the rough wood members into the finished level of construction. "Placing pilings is not a precise process. I know they will be roughly eight feet apart, but the keyword is 'roughly,'" he says. "We'll have to compensate for this above."

BUILDING CODE OFFICIALS HAVE A WEALTH OF INFORMATION ABOUT BUILDING ON DELICATE SITES.

He's anticipating other problems as construction gets under way. For example, the ground is soft enough that trucks may not be able to drive on it without sinking. This will mean laying boards or stone, or waiting for a summer dry spell. Also, fill will have to be brought in to create a driveway and landscape areas—the owners are counting on plantings to screen their view of neighboring homes and to provide at least a psychological barrier to noise from the nearby roads.

But, once complete, the house will have a panoramic view of the gentle fields that surround it and the estuary beyond. The capped septic field will serve as a "lawn," giving the owners space to garden and a place to entertain. And, perhaps best of all, the dwelling will have a minimal impact on the wildlife, the wetlands, and the vegetation that surround it. ■

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

INSTRUCTIONS

- Read the article "Siting Houses for Hard Places" using the learning objectives provided.
- Complete the questions below, then check your answers (page 182).
- Fill out and submit the AIA/CES education reporting form (page 182) or file the form on ARCHITECTURAL RECORD's Web site at www.archrecord.com to receive two AIA Learning Units.

QUESTIONS

1. What methods are used to stabilize a steep slope to make it suitable for building?

2. What conditions need to be considered when building on a brownfield site?

3. What are some of the problems encountered when building on a secluded site?

4. What are the problems involved in building near wetlands?

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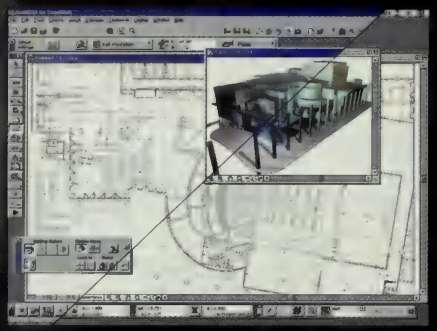
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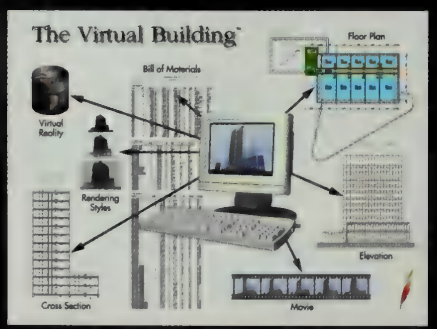
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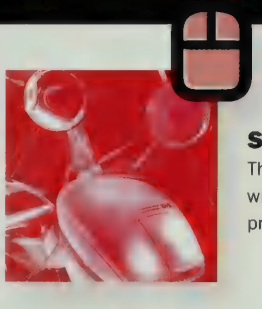
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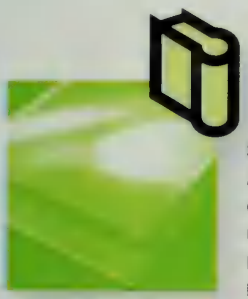
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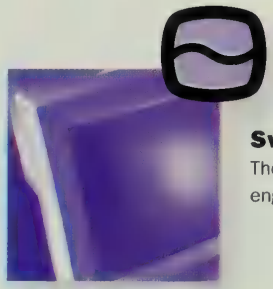
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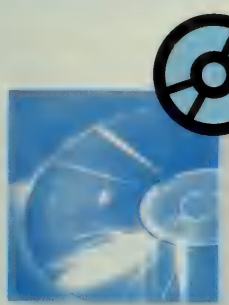
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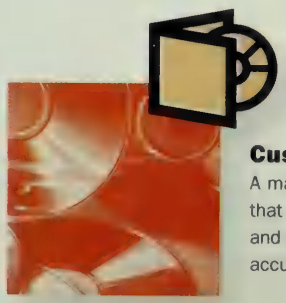
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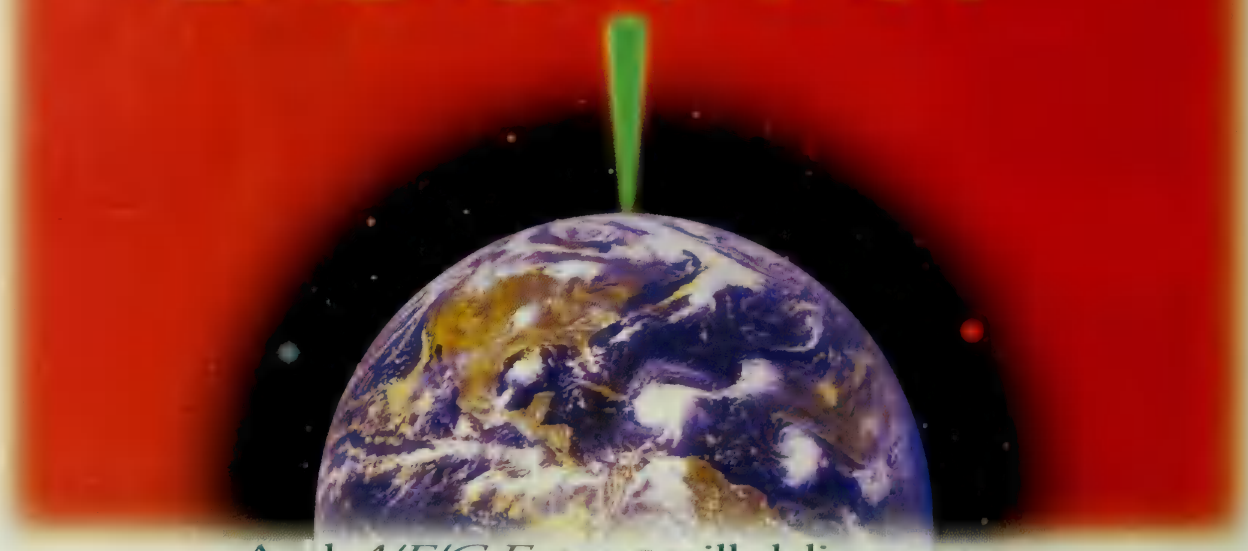
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Water features, once narrowly confined to aristocratic estates, are increasingly being used in smaller-scale residential gardens. The combination of off-the-shelf components and vendors who are able to create customized systems for reasonable prices has opened up a world of possibilities for the landscape designer.

For a Southern California residence, the landscape architecture firm SWA Group created two distinct water features that were interrelated technically but achieved diametrically opposed ends. The first, a series of 12 spouts overhanging a narrow pool, is intended to create an ambient effect: a low, constant gurgle that reverberates off the marble surfaces of a sunken patio. In the yard above, a more public and social area, SWA incorporated recessed nozzles into the combing of a pool, transforming an unexciting rectangular plane of water into a dynamic spectacle during dinner parties and other times when the pool is not being used.

John Loomis, a landscape architect at SWA, worked with the Fountain People, a water feature vendor based in San Marcos, Texas, to design the system. According to Loomis, much of the water technology on the market now was originally developed by WET Design of Universal City, California, one of the highest-profile water-feature design firms in the country, whose project list includes Disney's Epcot Center and the new Bellagio resort in Las Vegas. Over the years WET has developed a host of innovative designs for precision jets, high-volume pumps, and drainage systems that have revolutionized water features. Over time, much of WET's innovative technology has trickled into the retail market at reasonable prices.

In Toronto, architects Brigitte Shim and Howard Sutcliffe used water as the organizing principle for a reconfigured patio and garden room. The design—a linear trough emptying into two square pools and framed by strongly architectonic brick walls—was formed in response to the client's interest in Mies van der Rohe and the elegant simplicity of high Modernism. By using hand-molded brick supplied by Canada Brick to create the trough and the walls—which the architects call "brick hedges"—Shim-Sutcliffe extended the vocabulary of the existing house into the garden.

The ease of configuring pumping systems was crucial to the design of a garden created by Nelson Byrd Landscape Architects. The garden surrounds a quiet, meditative pool, framed in slate and fed by a small gurgling waterfall. Two symmetrical rills—one filled with water, the other with stones—balance the feature symbolically and spatially. According to Thomas L. Woltz, a landscape architect in the firm, the pumping system was designed for simplicity using a submersible Little Giant pump. Located in one of the smaller pools for easy maintenance, the pump sucks water from the pool through the shallow rill and flows it back through the small waterfall.

For a Charlottesville residence, Woltz designed a small, stand-alone fountain situated in a small basin. After a pool contractor submitted an exorbitant estimate for a basin, Woltz shifted gears, searching out less expensive materials. The basin was constructed with bricks made from a local soapstone quarry, and Aquatic Eco-Systems Inc., a pump vendor, advised Woltz on a magnetic-drive submersible pump that can run at low speeds without overheating. The stone fountain was custom fabricated by Stone Forest in Santa Fe. *Paul Bennett*

Paul Bennett is a senior writer for Landscape Architecture *magazine.*

The sound, movement, and reflection of water is both stimulating and calming. In countries such as China, where its presence nourished crops and supplied fish, it came to symbolize wealth. Times have changed, and affordable water features are now available for the residential landscape due to innovative drains, pumps, jets, and filters—available off the shelf or easily customized—that help provide water wherever the imagination allows. This month, landscape writer Paul Bennett describes several residential water-feature projects that utilized a variety of products to enhance their landscapes. —*Rita F. Catinella, Products Editor*



Shim-Sutcliffe's hand-molded "brick hedges" (above) and SWA's water features for a Southern California residence (left top and bottom).

Configuring water features takes ingenuity. But a helpful vendor doesn't hurt. Here are several suppliers who design water features:

The Fountain People, San Marcos, Tex. 512/392-1155. CIRCLE 200
Little Giant Pump Co., Oklahoma City, Okla. 405/947-2511. CIRCLE 201
Aquatic Eco-Systems Inc., Apopka, Fla. 800/422-3939. CIRCLE 202
Canada Brick, Mississauga, Ont. 800/268-5800. CIRCLE 203
Stone Forest, Santa Fe, N.M. 505/986-8883. CIRCLE 204

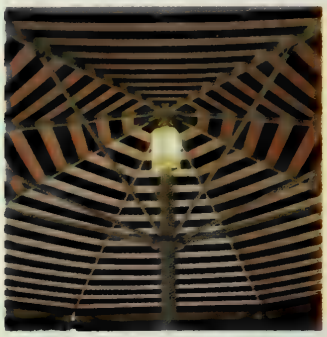
ELEMENTS FOR THE RESIDENTIAL LANDSCAPE

The property surrounding a residence offers the landscape architect an opportunity to create a variety of personal spaces for homeowners. Whether the grounds are large or small, elements such as conservatories, stone walls, and path lights help create vignettes that allow landscaped spaces to feel almost as intimate as those indoors.



◄ Stone walls

Carolina Ledgestone is a system of multi-stone modular components with Cultured Stone Products' exclusive interlocking mortar groove. A highly textured, smaller-scale ledgestone, the product adds strong shadow interest to any vertical surface and installs without grouting. Components are supplied in a combination of lengths. The wall featured here is in pewter gray. 800/255-1727. Cultured Stone, Napa, Calif. **CIRCLE 207**



◄ Durable sunshade

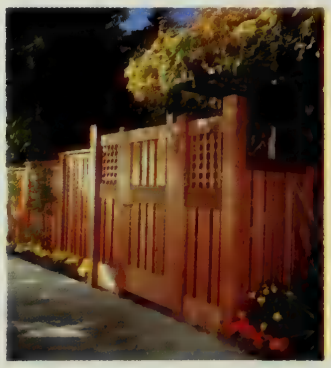
The Palazzo sunshade provides a durable weatherproof covering that can be equipped with internal wiring for lighting or optional motor drive. The most secure installation is the specially designed hinged ground socket embedded in concrete. A range of 100 percent acrylic awning and marine-weight fabrics are offered. 403/448-1044. Envirodesigns Inc., Edmonton, Alta. **CIRCLE 205**



► English conservatories

Amdega, Britain's oldest manufacturer of timber conservatories and summer houses, has introduced a range of eight "Botanical Colours." Densely pigmented, these colors range from traditional creams, blues, and greens to a vibrant lilac and a deep, rich red. Shown here is a Gothic freestanding conservatory in Amdega's Wisteria Lilac shade. Available in the U.S. 800/922-0110. Amdega, Glenview, Ill. **CIRCLE 208**





◄ Redwood fencing

Redwood creates a pleasant fencing that is durable for outdoor use. All redwood is decay- and insect-resistant, and has natural dimensional stability. Fences of various heights and in many patterns can be designed to screen, divide, shelter, and shade. Retaining walls, shelters, planters, and benches can be integrated with fence construction. 415/382-0662. California Redwood Association, Novato, Calif. **CIRCLE 209**

► A brighter path

HADCO has introduced the Garden Art Collection of landscape lighting fixtures. The collection offers the look of hand-crafted, solid-copper construction, and is available in a number of unique styles, including mushroom, tiffany, deck, and single and double tulip. Designed for path- and spread-lighting applications, the luminaires are handmade, giving each its own shape and texture. As the fixtures weather, they take on a rustic patina. 717/359-7131. HADCO, Littlestown, Pa. **CIRCLE 206**



► Outdoor furniture

Inspired by garden furniture created for great seaside cottages, the Cranberry Island Set pairs Weatherend Chairs with Sunbrella cushions and a Cranberry Island Pedestal Table. Each piece is constructed from mahogany using full mortise-and-tenon joinery bonded with a marine-grade epoxy for maximum strength and durability. The set is also offered in a wide range of custom colors, as well as natural teak and mahogany. 800/456-6483. Weatherend Estate Furniture, Rockland, Me. **CIRCLE 210**



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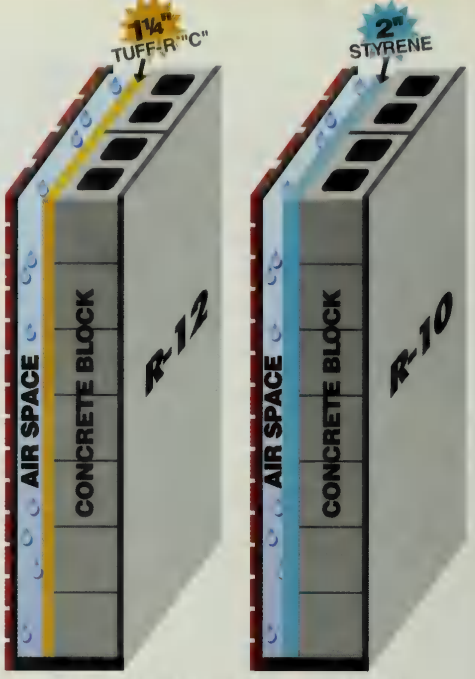
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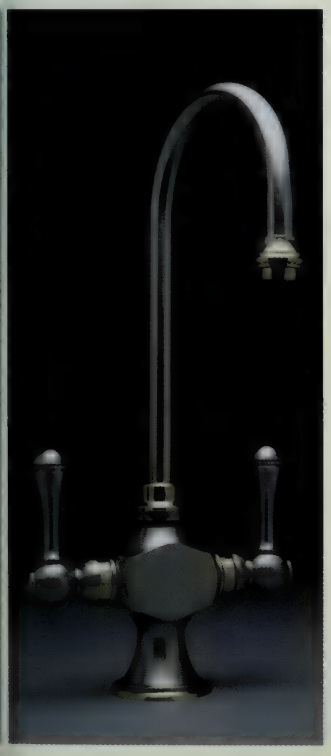
▼ Extra-deep whirlpool

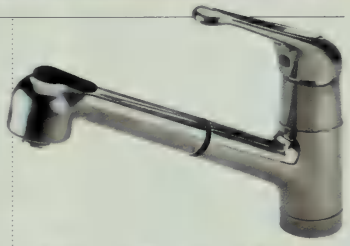
The Reprise Whirlpool, by Absolute, features a textured tub bottom, an extra-deep design, and two air-volume controls. Constructed of acrylic and U.L.-approved, Reprise includes six multi-directional and individually flow-adjustable jets. Available exclusively in white, the whirlpool measures 70 by 34 by 22 inches. 800/359-3261. Absolute, Chandler, Ariz. **CIRCLE 211**



▼ Bar faucet

The Koral single-hole bar faucet, from Phylrich International, is shown in a finish combination of satin nickel highlighted with polished gold. The component construction system allows the client a choice of any two-tone combination of the company's 17 hand-worked finishes. 213/467-3143. Phylrich International, Los Angeles. **CIRCLE 212**



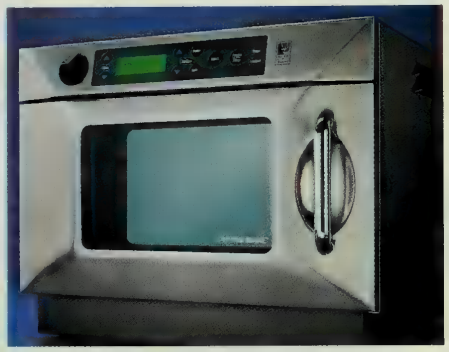


▲ New stainless-steel finish

Price Pfister offers a new stainless-steel finish for its 533 kitchen pull-out faucet. The faucet features a head that adjusts for both stream and spray, and is available in a variety of finishes: polished chrome, white, combination chrome/white, and almond. The ceramic disk valve is guaranteed for life against leaks. 800/Pfaucet. Price Pfister, Inc., Pacoima, Calif. **CIRCLE 213**

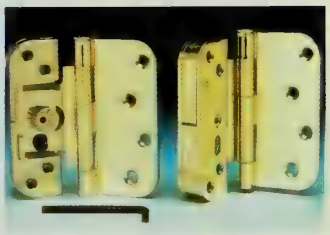
► Bake in a flash

The Flashbake 120, which uses high-energy halogen light controlled by a microprocessor, cooks food with the moisture, texture, and quality expected from a traditional thermal oven in approximately half the time. The Flashbake 120 will be the first countertop model that can plug into any standard 120-volt outlet; it will also be available in wall-mount models. The oven is preprogrammed to apply energy at different times during the cooking cycle to penetrate and cook from above and below. 510/498-4200. Flashbake, Fremont, Calif. **CIRCLE 215**



► Patio door hinges

Stanley Hardware offers a line of adjustable hinges designed specifically for residential use on wood-frame patio doors. The hinges allow for independent lateral movement of the door within the frame. 800/337-4393. Stanley Hardware, New Britain, Conn. **CIRCLE 216**





◄ Handcrafted glass console

The Glacier Console, from Porcher, is a handcrafted console lavatory made from ½-inch clear Starphire glass. Measuring 29¾ inches wide, 34 inches high, and 24¾ inches front to back, the Console has a six-inch-deep basin. The practical frosted-glass pattern serves to hide water spots. The Glacier Console comes complete with mounting hardware and two chrome legs. 800/359-3261. Porcher Ltd., Chandler, Ariz. **CIRCLE 217**

► Keeping dinner warm

The GE Profile Performance Series warming drawer is ideal for busy kitchens used for high-volume cooking and frequent entertaining. Available in widths of 27 or 30 inches, the new drawer conveniently installs under a cooktop or wall oven, among standard cabinet drawers, or alone in an island. Four different temperature settings are available. A special half-rack allows double stacking of both plates and food dishes, maximizing capacity. The slotted stainless-steel construction of the rack ensures even heat distribution. 800/626-2000. GE Appliances, Louisville, Ky. **CIRCLE 214**



PRODUCT BRIEFS

▼ Custom glass sinks

Created in Germany through an exclusive process known as glass fusion, AquaDream custom washbasins and sinks feature jewel-like colors and are virtually unbreakable. The wash-basins come in unusual oval or wedge shapes free of hard edges, and they may be set into a variety of pedestal and wall-mounted stands, from tubular metal supports to silver-tone mesh columns. 877/818-9000. AquaDreams Ltd., Los Angeles. **CIRCLE 218**



► Universal design cabinets

KraftMaid Cabinetry has expanded its Passport Series, making the products available through the company's semi-custom cabinetry line. The series is available in all of the styles, finishes, and optional features offered in KraftMaid's traditional cabinets. The Passport Series is the only cabinet line that has been certified for universal design by the Institute for Technology Development. Passport now includes 10 door styles in four wood species, and features up to 12 finishes. 800/571-1990. KraftMaid Cabinetry, Inc., Middlefield, Ohio. **CIRCLE 219**



▼ Prevent shower-shock

Moen Incorporated's Posi-Temp pressure-balancing valve has been improved to offer increased cartridge-corrosion resistance and make overall installations easier and more cost-effective for builders, installers, and homeowners alike. The Posi-Temp valve balances shower pressure in the waterlines to help reduce the potentially dangerous shower-shock effect (the immediate rush of hot or cold water when someone flushes the toilet, starts the washing machine, etc.), and to maintain water temperature plus or minus two degrees Fahrenheit. 800/BUY-MOEN. Moen Incorporated, North Olmsted, Ohio. **CIRCLE 220**





◄ Motion-sensing switches

Eagle Electric has introduced motion-sensing wall switches that provide energy savings, safety, and convenience in residential applications. The switches contain passive infrared sensors with a fresnel lens, giving them the capacity to detect large and small movements by occupants in a room. This enables the device to turn on and maintain lighting when a room is occupied, and automatically turn off lights in unoccupied rooms. The switches replace standard wall switches, with no additional wiring necessary. 718/937-8000. Eagle Electric Manufacturing Co., Long Island City, N.Y. **CIRCLE 221**

► More fashion with your flush

A series of six designs of wall-mounted toilets are available from Duravit USA, including a new model by Philippe Starck. Each wall-mounted unit features a concealed tank and carrier system: the tank mounts inside the wall, which saves valuable floor space and allows for greater design flexibility. Bowl heights can be set according to the needs of the individual, and all toilets are equipped with a feature that uses 50 percent less water than regular toilets while ensuring a hygienic flush. Duravit USA, Inc., Duluth, Ga. **CIRCLE 222**



▼ Versatile shelf system

Partner, a new shelf system from Kartell, can be reconfigured and fitted with optional accessories to work in the living room, bath, or kitchen. While Partner has a lightweight appearance, it is constructed to withstand and safely hold the weight of even the heaviest books or objects. The frames are made from extruded aluminum; the shelves are made of injection-molded plastic in a honeycomb pattern, which is then sandwiched between two very thin sheets of anodized aluminum. Designed by Alberto Meda and Paolo Rizzatto, Partner is available in 10 sizes. 212/966-6665. Kartell, New York City. **CIRCLE 223**



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Location - *Coffee People / Portland, Oregon*
Project Paint Colors - *Sherwin-Williams ColorAnswers®: Luminary Gold SW1362 / Carob Brown SW1322*
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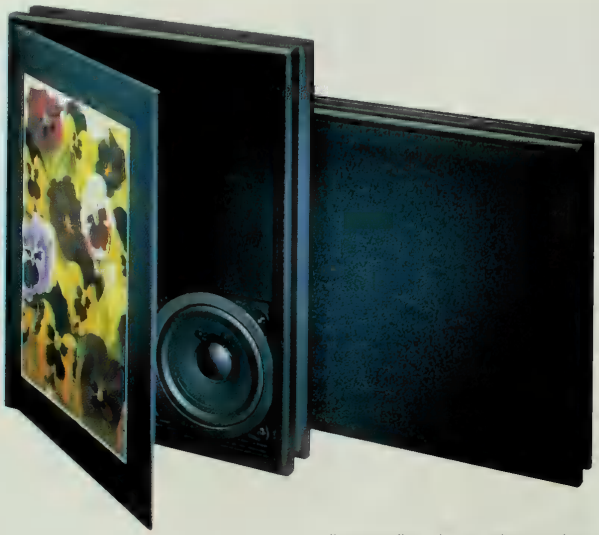
CIRCLE 67 ON INQUIRY CARD

PRODUCT BRIEFS

▼ No need to duck

The Craftmaster Cremona eight-foot door design features two panels with a soft, crowning curve at the top. The door arrives primed and ready to finish, with a smooth surface that accepts high-gloss paint. As a standard door, the Cremona is available in widths from one to three feet. 800/405-2233. Masonite Corporation, Chicago. **CIRCLE 224**



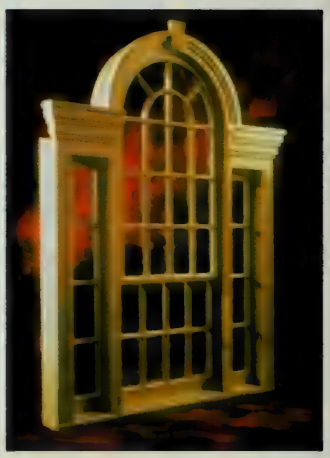


▲ Audible art

A new concept in home theater and home audio, Gekko Flat Speakers employ a patented technology that evenly disperses high-quality sound throughout the room. The flat design, intended for wall mounting, is aesthetically versatile—the speaker can be transformed into a work of art suited to virtually any decor. The ArtGekko collection features over 450 images that can be printed onto acoustically permeable synthetic silk to create a custom speaker grille. 203/961-0500. Noise Cancellation Technologies, Inc., Stamford, Conn. **CIRCLE 225**

▼ Divided light windows

Vetter's Ashford Collection features aligned, historically correct ⅛-inch muntin bars on each side of the insulated glass window, with a muntin grille built into the sash between the two panes of glass. This gives the complete sash the strength of two full panes of glass, as well as a boost in energy efficiency. All wood parts are pretreated with a water-repellent preservative. 715/693-8407. Vetter, Mosinee, Wis. **CIRCLE 226**



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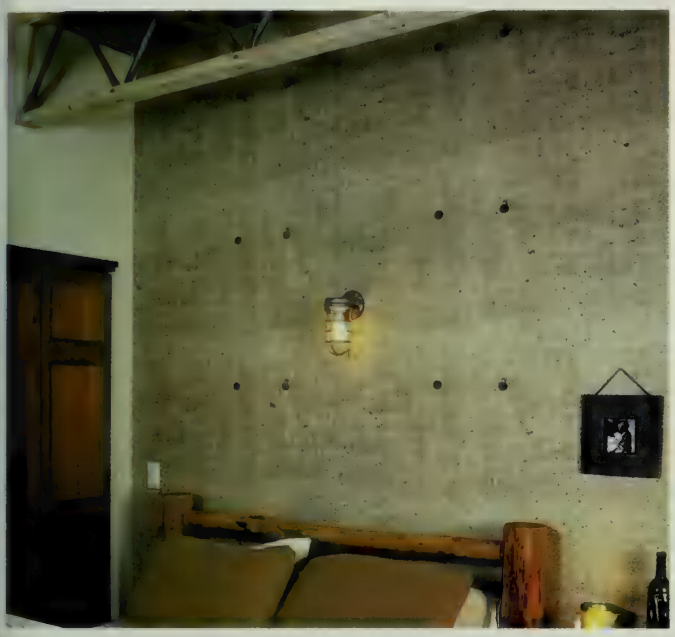
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PRODUCTBRIEFS

▼ Paper-thin concrete

Roc Inc. offers a concrete-patterned wallcovering, the first in its new line of Paper Werks products. The print enables residential and commercial designers, as well as do-it-yourselfers, to obtain the modern industrial look of exposed concrete without incurring the time and expense of tearing down existing walls or pouring new ones. 800/942-4902. Roc Inc., Blaine, Wash. **CIRCLE 227**



► Tornado-tough siding

Mastic introduces QUEST³ Series premium vinyl siding, featuring the company's new T³ system—with a double nail hem and a heftier locking system. The siding is 200 percent more rigid than standard vinyl siding. The double nail hem holds the panel so securely that it is able to withstand winds of up to 190 miles per hour. The product line features 12 colors and three profiles. 800/MASTIC6. Mastic, Sidney, Ohio. **CIRCLE 228**





◄ Encapsulated fiberglass

Johns Manville ComfortTherm insulation—for use in walls and under floors—is encapsulated with a poly-wrap system that reduces airborne fibers and puts a barrier between the environment and the fiberglass. ComfortTherm, the only encapsulated insulation with a polyethylene facing, which blocks water vapor, is certified to contain at least 25 percent recycled glass. 800/654-3103. Johns Manville Corporation, Denver. **CIRCLE 229**

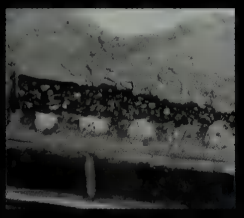
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PRODUCT LITERATURE

Downlighting brochure

Lightolier's Decorative Calculite downlighting product brochure is for specifiers concerned with specification-grade lighting for high-end commercial projects. 401/846-2012. Lightolier, Fall River, Mass. **CIRCLE 230**

Roofing catalog

Siplast, Inc.'s 1999 Modified Roofing Systems Catalog describes in detail the complete line of the company's engineered roofing systems. 800/922-8800. Siplast, Irving, Tex. **CIRCLE 231**

Acrylic sample sheet

A sample kit containing an Acrylite AR abrasion-resistant acrylic sheet test is available through CYRO Industries. 800/631-5384. CYRO Industries, Rockaway, N.J. **CIRCLE 232**

Architectural windows

A new brochure, "Architectural Windows for Colleges and Universities," highlights 12 of the many services Wausau Metals provides to help building teams involved in selecting windows for such institutions. 715/845-2161. Wausau Metals, Wausau, Wis. **CIRCLE 233**

Whirlpools and faucets

Two new books from American Standard feature more than 30 whirlpool models and more than 120 designs of shower systems, bathroom faucets, and kitchen faucets. 800/524-9797. American Standard, Piscataway, N.J. **CIRCLE 234**

Glass structures

W&W Glass Systems, Inc./Pilkington Planar Systems' latest brochure features the company's developments in the areas of glass-fin and tension structures, skylights and canopies. 800/452-7925. W&W Glass Systems, Inc., Nanuet, N.Y. **CIRCLE 235**

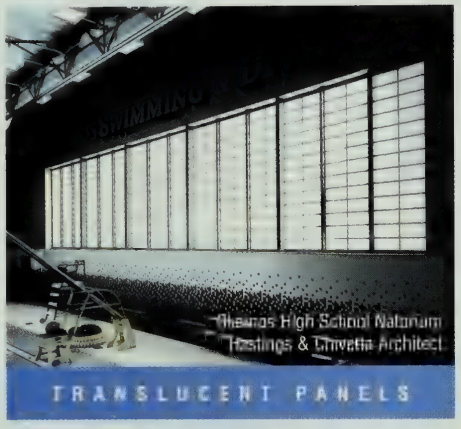
Commercial roofing

Celotex has a new brochure featuring premium laminated shake shingles for commercial applications. The shingles come in a range of colors and with various warranties. 813/873-4230. Celotex Corporation, Tampa, Fla. **CIRCLE 236**



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PRODUCT LITERATURE

Shower enclosures

Duschqueen's literature features a new line of solid brass framed and frameless glass shower enclosures. 800/348-8080. Duschqueen, Inc., Wyckoff, N.J. **CIRCLE 237**

Preformed millwork

The 1999 Life-Time Catalog features more than 2,500 detailed and preformed architectural millwork items. All items ship in 10 working days or less. 800/367-1076. RAS Industries, Charleroi, Pa. **CIRCLE 238**

Electrical troubleshooting

Electrical Applications for Air Conditioning & Refrigeration Systems explains and illustrates methods for troubleshooting the full spectrum of electrical or electronic circuits for these systems. 770/925-9388. The Fairmont Press, Lilburn, Ga. **CIRCLE 239**

Damp location lighting

Ardee Lighting offers a new brochure titled "Clikstrip for Damp Locations", featuring flexible, low-voltage linear strip lighting designed specifically for environments like decks, gazebos, and walkways. 704/482-2811. Ardee Lighting, Shelby, N.C. **CIRCLE 240**

HVAC/mechanical insulation

Specifiers, contractors, and distributors can use a new brochure from CertainTeed to familiarize themselves with the company's full line of HVAC/mechanical fiberglass insulation products. 800/233-8990. CertainTeed, Valley Forge, Pa. **CIRCLE 241**

Kitchen and bath design

"Kitchen & Bath Theme Design—An Architectural Guide," from the National Kitchen & Bath Association, is available for members and consumers. 800/843-6522. National Kitchen & Bath Association, Hackettstown, N.J. **CIRCLE 242**

Doorlights/doors/windows

ODL's 1999 product catalog, along with a new 12-page product brochure, offers detailed product information and new product photography. 800/253-3900. ODL, Zeeland, Mich. **CIRCLE 243**



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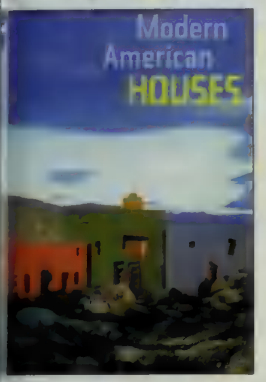
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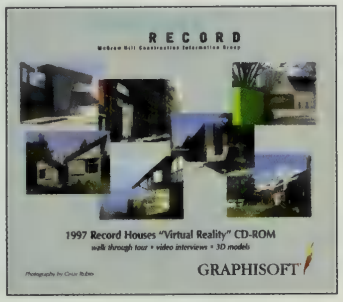
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Questions appear on page 158. To receive CES credits, fill in the education reporting form below or on our Web site (www.archrecord.com).

1. There are many ways to stabilize a slope. But first, a slope-stability analysis should be conducted on steep sites. If a slide area is found, the foundation must be designed accordingly. One way is to drive piles to hold the house. These piles must be embedded at the proper depth below the face of the slope, so that there is a safety factor in case the surface soil washes away. Another way the slope can be fortified to make it suitable for building on is by excavating the soil and replacing it with materials that have greater stability, such as gravel or a combination of soil, gravel, and geotextiles. Other methods are to terrace the slope or to use a retaining wall. A drawback to these alternatives is that they require tearing up the site—a problem if the land contains endangered species or is otherwise environmentally sensitive.

2. Brownfields, or used-land sites, require special consideration due to the presence of rubble or waste on the lot and the fact that they are located in an urban environment. They may involve pollution abatement issues, material-handling logistics, security provisions, difficulties in handling unfriendly neighbors, complications from lot-line wall construction, and zoning requirements that don't match existing conditions.

3. Secluded and precarious sites bring new challenges to the building process. There may be problems getting to the site, or access may be limited by the fact that there are no paved roads or bridges. If workers and materials have to be taken to the location by ferry or barge, time and cost is added to the work schedule. Also, planning for the delivery and storage of materials becomes more complex. In some areas, local restrictions call for restoring the site to its original condition once construction is completed. This involves removing waste and replacing vegetation. Environmental analyses may need to be submitted to local review boards to demonstrate how the new structure will affect wind circulation, habitat, the flow of water across the site, and other environmental elements.

4. Building near wetlands is a controversial issue. These sites are subject to federal, state, and local regulations. The federal government's policy is to avoid building on or close to wetlands. If they are endangered, then the lost wetlands must be compensated for by creating new wetland areas. After the environmental issues are dealt with, the architect must determine the best ways to stabilize the site, design a suitable foundation, and limit runoff. Wetlands often have poor soil and, because of the amount of moisture, an inability to support loads. They usually have a high level of groundwater, which poses problems in building the foundation, getting good water, and locating a septic system.

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AMERICAN ARCHITECTURE *from page 81*

against the impersonal, machine-made eclecticism of the Victorian era. It was a return to human hands and natural materials in opposition to the Industrial Revolution. Apparently, it's alive and well in Brisbane.

But there's also a more contemporary movement that is, in its way, another version of something like Arts and Crafts. Today, instead of rebelling against the Industrial Revolution, we're rebelling against the digital revolution. Because we're starved for sensory experience as we spend our lives staring at electronic blips, so we too are reviving a past. But in an amusing irony, the past we are reviving is the Industrial Revolution—the very thing the first Arts and Crafts movement hated. Suddenly, trussed steel bridges and concrete factories look beautiful because they seem so real—in fact, so "crafted" as compared to the digital world. Perhaps we can see a hint of this second Arts and Crafts revolution in the work of Thom Mayne of Morphosis, or of Tod Williams and Billie Tsien.

Finally, the International Style at its best, with all its elegance and its deliberate, surreal, often moving attempt to be timeless and placeless, appears to be strongly present, in different ways, in the houses by Tadao Ando and Herzog & de Meuron. The second of these is International in the way it emphasizes its placelessness by being positioned on a plinth, as if it were a movable object displayed in a museum. Yet it's antimodern in its attempt to create an iconic image, a pictograph, of house-ness. It draws on deep cultural memory, like a Jungian archetype or a meditation by Heidegger. Judging, as one shouldn't, from just a couple of pictures, it's at once the most interesting and the most disturbing of the houses. Made of concrete, it imitates the shapes and spans of wood construction; set on a pedestal, it deliberately divorces itself from the realities of site, climate, and construction: everything that is local. It reads very much as an architect's "statement," made for a peer group rather than a user. It may be hard to inhabit, because it seems already fully inhabited by the architect's imagination. For all its fascination, I'm not sure I'd be able to incorporate it into my sense of myself the way I did my grandparents' house. But, at the very least, it helps define some of the predicaments of architects today, in that it presents to us for our contemplation a fully abstracted version of Disneyland kitsch, and asks us a question: in a cyberworld, what is the meaning of time and place? ■

DATES/EVENTS *from page 68*

buildings in Idaho, Montana, Oregon, and Washington. For information, call 503/223-8757 or E-mail aeprogram@aiaportland.com.

Design Housing for Roswell, New Mexico
Submission deadline: June 10
The flood-prone cow town infamous for alleged UFO sightings is seeking designs for housing. As much as $10,000 may be awarded. Call 323/296-6226 for registration information.

The American Wood Preservers Institute "Century's Best" Awards
Submission deadline: August 2
This competition seeks designs for deck, dock, garden, playground, or other treated wood construction. The grand prize winner will be awarded a trip to the Sundance Resort in Utah. To obtain an entry form, call 800/356-2974 or visit www.awpi.org.

Boston Society of Architects Design Awards Programs
Submission deadline: August (call for details)
The Boston Society of Architects announces two awards programs. The Architectural Design Honors Awards Program is open to projects anywhere in the world by Massachusetts architects, and to built projects in the state designed by any architect worldwide. The eighth annual Unbuilt Architecture Design Awards are open to architects, architectural educators, and architectural students throughout the world. For submission guidelines, call the BSA at 617/951-1433 x221 or E-mail bsarch@architects.org.

1999 James Marston Fitch Charitable Foundation Mid-Career Grant Awards
Application deadline: September 1
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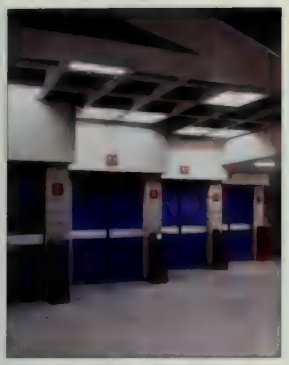
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Concord Elevator's inclined platform lift makes it easy for existing buildings to meet A.D.A. requirements. Providing a safe & reliable ride along stairways, the I.P.L. makes every floor accessible to wheelchair users. Requiring minimal construction & maintenance, the I.P.L. was designed for indoor or outdoor use. The unit folds up to a minimal 12 1/4 inches, leaving stairways clear for others. For more information, please call (800) 661-5112 or visit us at www.concordelevator.com

Concord Elevator Inc.

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New Fireplace Tested as a Wall Furnace



Our products have taken direct-vent technology & incorporated it into a new high performance fireplace. Model 6000 Supreme is a high efficiency fireplace (thermal efficiency up to 74%) & has an AFUE (Annual Fuel Utilization Efficiency) rating of 63%. The 6000 Supreme is standard with a variable regulator to adjust the flame & BTU input with the turn of a dial. Heat-N-Glo, 6665 West Hwy 13, Savage, MN 55378, 1-800-669-HEAT.

Heat-N-Glo

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Ornamental Picket Fence with a Purpose

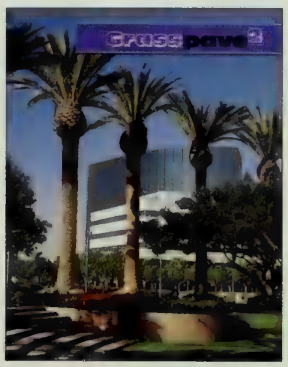


We have given special attention to each & every component of our fence. Every item is designed for strength, durability and low maintenance. No other company builds a complete fence - rail, rivets, brackets, pickets and posts, that are stronger, more durable, have more security or lower maintenance costs than our fences. Monumental Iron Works, 6500 Eastern Ave., Baltimore, MD 21224. Tel: (410) 633-6500, Fax: (800) 239-2963.

Monumental Iron Works

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New 20-Page Grasspave² Brochure



"We want the rolls" contractors say! Grasspave² by Invisible Structures, 9 large rolls, 108 sf - 1346 sf ea (10 m² - 125 m²) for fast, easy installation of reinforced grass firelanes and parking areas. 16 years of experience, repeat customers make Grasspave² a dependable, smart choice. Call 800-233-1510 for CD-Rom disks with over 60 details or visit our photo-filled web at www.invisiblestructures.com.

Invisible Structures, Inc.

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New Invisible Products Roll Out



3 new invisible products have been added to the family of Grasspave2 & Gravelpave2 - Slopetame2, Draincore2, & Rainstore3. For 16 years we have provided grass paving ring structures with 92% void area for root development. Now we're applying this technology to erosion control, drainage, & water storage with easy installation in 9 roll sizes. Call our knowledgeable staff for CADD details, specs, & product specs at (800) 233-1510. Web Site: http//:wwwinvisiblestructures.com

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Carriage House Shangle™

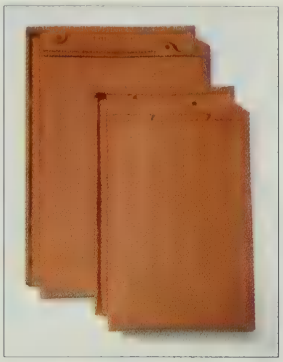


Utilizes CertainTeed's exclusive Super Shangle® construction with two full-size base shingles, resulting in virtually four layers of shingle protection and 8-inch exposure when applied. This super-heavyweight fiber glass shingle (355 lb per square) also features a unique chamfered cut for scalloped appearance. UL Class A; lifetime limited, transferable warranty; algae-resistant; UL Certified to meet ASTM D 3462.

CertainTeed Corporation

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Gooding Aluminum

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ADA Insulation Safety Covers

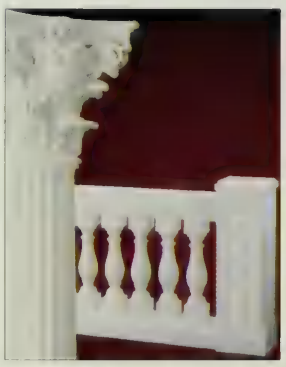


Plumberex Specialty Products, Inc is the only company that manufactures a complete line of ADA safety covers for commercial & residential applications, meeting all building & fire codes with a -0- smoke rating. The Handy-Shield™ Safety Covers are the one and only ADA safety covers one the market with a "Dual" fastening system to help deter theft!

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Columns and Balustrades

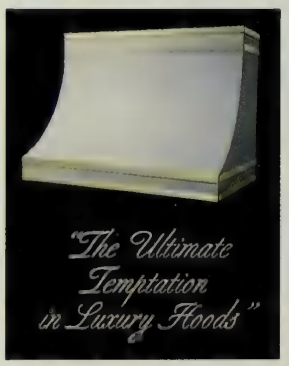


Classically authentic yet affordably priced columns & balustrades from Melton Classics, Inc. Quality products include: fiberglass columns, marble/resin composite columns, & architectural wood columns for paint or stain. New from Melton Classics is our full line of MeltonStone™ cast stone columns, balustrades, & architectural elements. Call 800-963-3060 for free literature or see our website at www.meltonclassics.com.

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New Presage™ Whirlpool

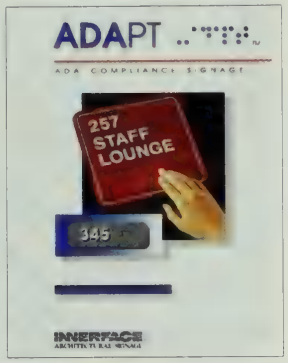


Designed for corner installations, the new Presage™ whirlpool bath by Jacuzzi Whirlpool Bath features ten adjustable jets. An ideal complement to the Presage, the Trivella™ Suite features a one-piece toilet with elongated rim and terraced tank lid as well as a pedestal lavatory. (800) 288-4002. www.jacuzzi.com.

Jacuzzi Whirlpool Bath

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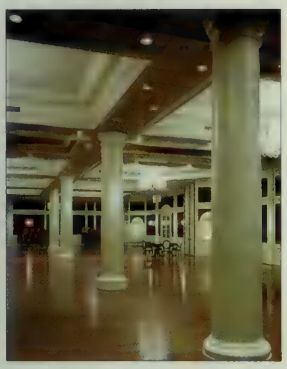
CIRCLE 168 ON INQUIRY CARD



The No 2006 is a Bauhaus handle based on a Walter Gropius design. Nanz manufactures this and a wide range of other levers, knobs, locks, hinges and cabinetry hardware. Fax a request for our free Product Selection Guide or our $20 catalogue featuring this and over seventy other handles. phone 212 367 7000, fax 212 367 7375

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Meridian Toilets – "One Continuous Piece"



Acorn Engineering is proud to introduce a new line of innovative toilets that are attractive, contemporary & vandal-resistant for the commercial & residential market. ADA compliant, the Meridian toilet is fabricated from a heavy gauge stainless steel. This sleek contoured design is available on-floor siphon or off-floor blow-out jets. Optional polished mirror finish & powder coating finishes available. For a product brochure or more info call Acorn Engineering (800) 488-8999, or www.acorneng.com

Acorn Engineering Co.

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Mini-JOMY

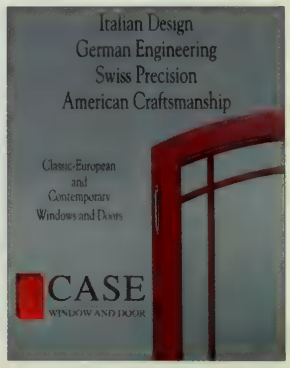


The JOMY Safety Ladder Co. proudly introduces the Mini-JOMY, a scaled down version of the JOMY Safety Ladder, specially designed for residential & light commercial applications. The Mini-JOMY looks like a drainpipe but folds out to a 17" wide ladder with slip resistant rungs constructed of extruded anodized aluminum & stainless steel. The Mini-JOMY is maintenance free & will last the lifetime of any building. Call 800-255-2591 for additional information.

JOMY Safety Ladder Co.

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Windows, Doors Rolling Window Walls



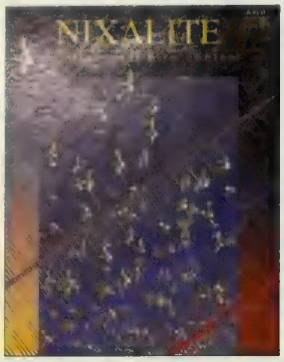
Case Window and Door manufactures windows, doors, window walls, and rolling glass walls for residential and commercial projects. All products are custom laminated from any appropriate wood species. Metal clad systems in anodized or coated aluminum, and architectural bronze are also available. Hardware and glazing options are virtually unlimited. (800) 227-3957

Case Window and Door

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North American Hardwoods

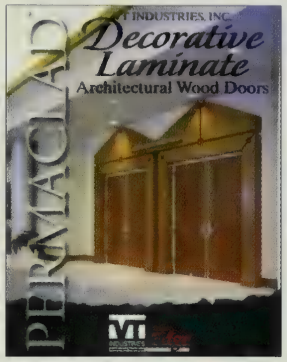


The Hardwood Council provides practical info to specifiers of North American hardwood products through "Tips and Techniques." The ten techincal brochures, also available on CD-ROM, are designed to increase knowledge of hardwood species & applications. The Council also offers a program based on Tips #10: The Book Behind the Look, for architects to earn AIA/CES credits. To obtain the CD-ROM, Tips #1-10 or the AIA/CES test, call 412-281-4980 or www.hardwoodcouncil.com.

The Hardwood Council

CIRCLE 174 ON INQUIRY CARD

PermaClad™ Laminate Doors For Design & Performance

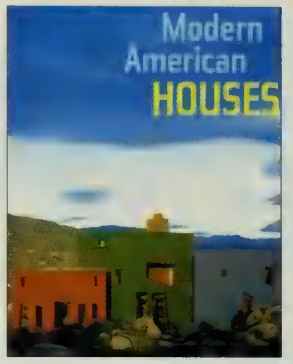


PermaClad™ decorative laminate architectural wood doors from VT Industries, Inc. give you the most value, quality and design freedom for any application. Our commitment to innovative manufacturing technology means you receive doors that deliver top performance plus added aesthetic appeal. To learn more, ask for our free brochure at 800-827-1615, ext. 304.

VT Industries

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Modern American Houses



This 230-page book is packed with color photographs of more than 75 houses featured in Record Houses since 1956. New essays explore the evolution of home design decade by decade–Thomas Hines on the '50s, Robert Campbell on the '60s, Suzanne Stephens on the '70s, Charles Gandee on the '80s and '90s. $49.50. To order please call (212) 904-4635.

Record Houses

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A room-by-room tour, with architects discussing their creative and product decisions. Click and zoom and move around objects via QuickTime©VR. Architectural Record worked closely with Graphisoft©, using ArchiCad©, to produce an interactive CD-ROM house tour that includes photos and excerpts from the articles from the April '97 issue. For Windows and Mac. $24.95. Record Houses CD-ROM, Two Penn Plaza, NY, NY 10121-2298.

Record Houses

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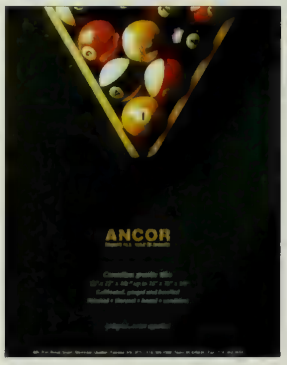


Improved spray characteristics and ratings up to 3 hours! A/D FIREFILM®II permits designers to use the appearance of exposed steel with the steel protected from fire. The product is applied as a thin-film coating 0.4 to 3.3 mm (16 to 130 mils) thick. When exposed to fire it expands to form a meringue-like insulating layer up to 4 in. thick. A/D COLORCOAT topcoat is available in a wide range of colours. Call 1-800-263-4087 or 416-263-4087. Internet: www.adfire.com. See us in Sweets.

A/D Fire Protection

CIRCLE 178 ON INQUIRY CARD

Ancor Granite Tile

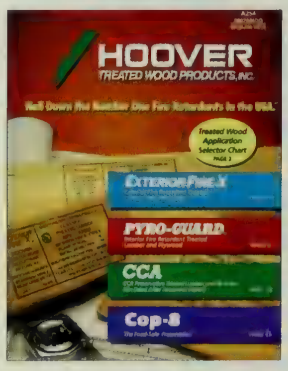


Ancor produces over fifty No. American and Imported granites in a full range of colors and finishes for residential, commercial and institutional use. Standard format is 12 x 12 x 3/8"; other sizes up to 18 x 18 x 1/2" available. Honed finish tile is particularly suitable for high traffic commercial areas. 435 Port Royal West, Montreal, Quebec, H3L2C3, Canada. Ph# (514) 385-9366, Fax# (514) 382-3533.

Ancor Granite

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Fire Retardants and Preservatives



New 16-page Sweet's catalog features Pyro-Guard® interior type FRT lumber and plywood; Exterior Fire-X® FRT lumber and plywood for exterior uses; CCA/KDAT preservative treated lumber and plywood that's Kiln Dried After Treatment; COP-8® the food-safe preservative; PWF treated wood for Permanent Wood Foundations; and PLYWALL engineered wood noise barriers, from Hoover Treated Wood Products Inc, http://www.frtw.com

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SMART Technologies Inc.

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Xenon Luminaries

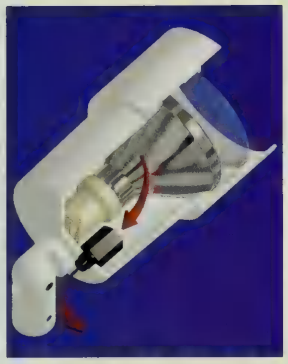


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Space Cannon

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B-K Lighting, Inc.

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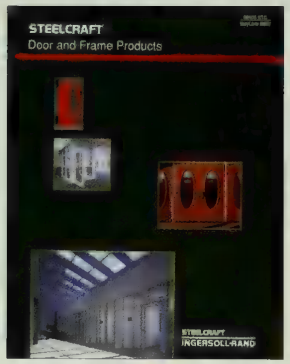


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SteelCraft Product Guide #613



The Steelcraft Product Guide is designed with the architect, & design community in mind. Product specifiers can find basic door & frame specs in a special chart. We have included a "Relative Cost Chart" that shows the cost comparison between various Steelcraft products. We include Steelcraft product specs; fire label charts; door & frame selection charts; handing charts; & info service list.

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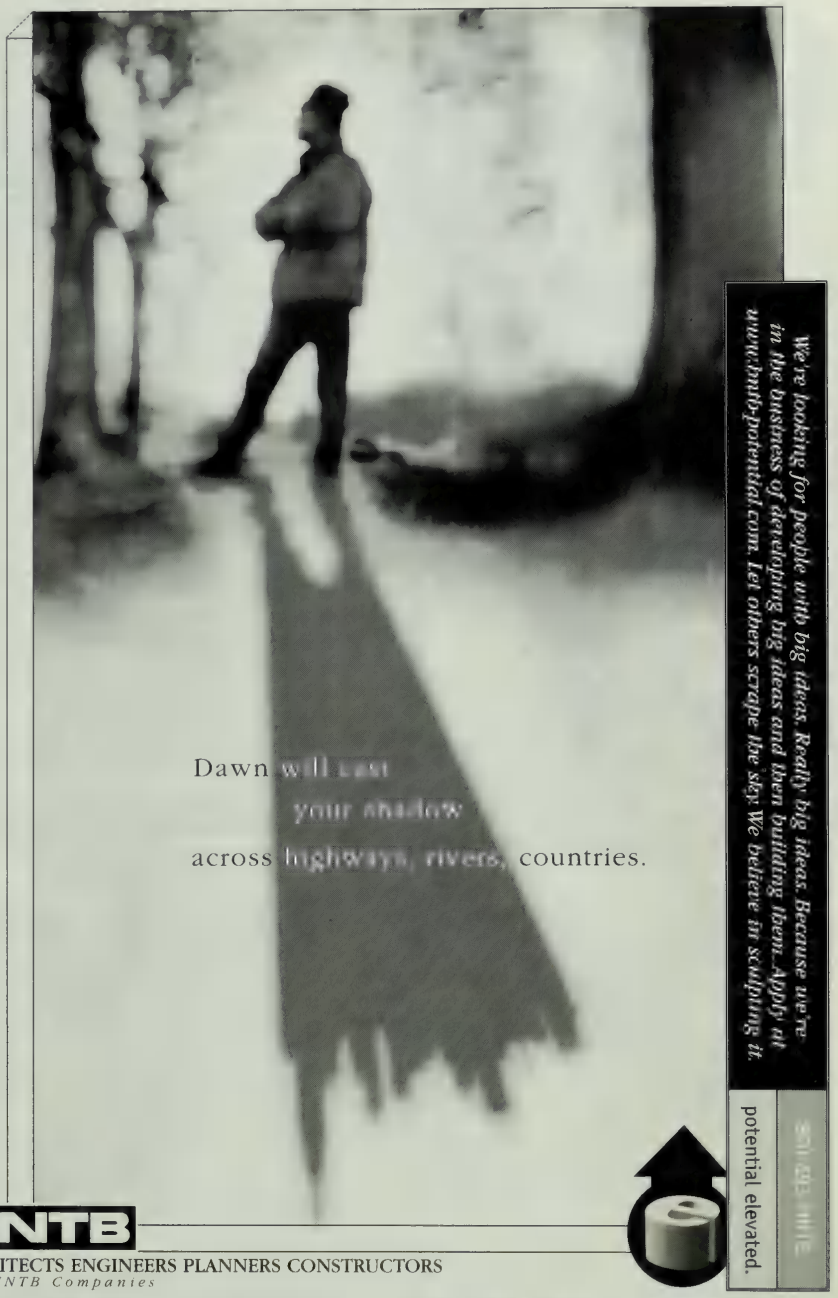
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THE FUTURE With the explosion of wireless digital communications, rooftops are taking on a new role.

BY ALYSSA KATZ



When Robert Venturi placed a mock television antenna on the roof of a Philadelphia nursing home in 1963—a playful commentary on the recreational habits of the elderly—he couldn't have known that a future generation of architects would do much the same thing for practical reasons. Though cable television knocked aerials off their perches, the arrival of wireless digital communications has hardly cleaned up skylines—in fact, it's brought a new array of silhouettes into view.

Forests of antenna poles relaying cellular and PCS calls have sprung up on top of commercial buildings everywhere, sometimes accompanied by satellite dishes relaying high-speed Internet connections through the air. And in order to launch digital television, broadcasters are cutting multimillion-dollar deals to place towers hundreds of feet high on top of the tallest structures they can find. In downtown Detroit, for example, the Renaissance Center is the prospective host of a 300-foot-high structure on its rooftop.

Fearing that their buildings are starting to look a little spiky, many owners and developers are turning to architects to help them corral the messes on their rooftops into forms that do justice to the structures they sit on.

Once reserved for cooling systems and window-washing rigs, rooftop rentals are now a $200 million-a-year business. By 2005, estimates Elliott Hamilton of the Strategis Group, a wireless-industry consulting firm, the tops of up to 50,000 buildings will be rented for some kind of apparatus. Rooftop management firms now hook up communications companies with fortuitously located buildings, and downtown properties and highway-side sites have become particularly valuable real estate, where rooftop spaces rent for anywhere from $600 to $1,500 a month.

Landlords are encouraged to think of the antennae as tenants who won't need parking or complain when the air-conditioning breaks down. But aesthetically minded owners and occupants sometimes need a harder sell. In Lexington, Massachusetts, the Stride Rite shoe company's headquarters is perched alongside Route 128, the lifeline of Boston's high-tech corridor. When the company refused to ruffle the clean lines of its 1971 concrete-and-glass complex, Sprint and Bell Atlantic offered an alternative: enclosures mounted on top of existing elevator hoistways, stairwells, and toilet cores that extended them all upward by several feet. Made of foam-core fiberglass, which can be impregnated with durable color pigment, the additions were designed to match the concrete seamlessly even as they allow unimpeded transmission of cell-phone signals.

"Some owners aren't so enlightened," laments architect Bob Evans of New York's Evans, Heintges, who consulted on the effort. "You see antennas that have nothing to do with the architectonic order of the building."



Stealth Network Technologies' fiberglass shielding system provided enclosure for wireless communication equipment atop a church in Monrovia, California (before, left, and after, above).

The fiberglass shielding, manufactured by Stealth Network Technologies of North Charleston, South Carolina, is also turning up in fake Spanish tile, simulated brickface, and stucco.

But adding mass doesn't necessarily work on a large scale, and newer technologies are requiring more creative responses. Purveyors of wireless phone services—which provide calling capacity and high-speed Internet access to corporate subscribers—ricochet microwaves between their customers and several hub rooftops. Ideally, receiving rooftops have a clear line of sight to a hub, and the hubs to each other; if they don't, it's possible to bounce the signal through an intermediate stop. (There's little guesswork involved: engineers consult 3D digital renderings of downtowns, compiled through a painstaking process that combines map data with information gleaned from planes that slowly scan cities block by block.)

To maintain clear transmissions between the hubs while concealing them from passersby, the owners of a 1929 Chicago building replaced the original finial with a tower featuring a stacked series of circular shelves, each housing antennae pointing all over the city. The shelves are ringed with tubes of light and topped with a glowing spire.

Architects are starting to figure out how to meld the technical and aesthetic demands of the wireless age. For New York City's 4 Times Square, Dan Kaplan of Fox & Fowle extended structural girders into a 75-foot-high rooftop frame, set at a 45-degree angle to the building line, that will house up to 200 broadcast and telecommunications antennae surrounding a 150-foot digital TV transmitter. Supporting equipment is housed in a structure hidden behind four massive billboards. "It's an integrated machine up there," says Kaplan. "We wanted texture; we wanted to see these elements. That's tough, because you've also got to plan for the ways technology will change over time."

Someone looking at such tech-topped buildings a few decades from now may find it easy to date them to the turn of the millennium. In years to come, orbiting transmitters are likely to be serious rivals to lowly rooftops. "The window of opportunity for these rooftop structures is about 10 years," guesses Jerry Marmelstein, president of Vermont-based Riser Management Systems. "Our kids will look up and see 40 satellites twinkling in the night sky." ■

Alyssa Katz is a freelance writer based in Brooklyn, New York.

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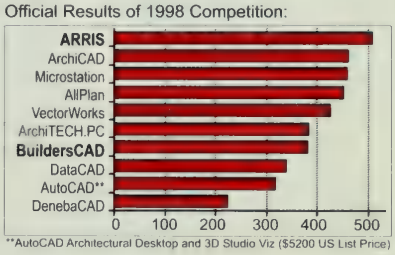
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